

# Energy Levels and Classified Lines in the First Spectrum of Technetium (Tc I)

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Progress in the classification of Tc I lines is reported. About 2200 of the known Tc I lines between 2154 and 8918 Å are now classified as transitions between 108 even and 147 odd energy levels. Tables of levels and classified lines are given.

Key Words: Atomic spectra; energy levels, Tc I; spectrum of technetium; technetium.

## 1. Introduction

The analysis of the first spectrum of technetium has progressed in three separate stages. The first useful description of the spectrum was made by Meggers and Scribner [1].<sup>1</sup> The initial advances in the analysis, made by Meggers [2] from that line list, resulted in the classification of 200 lines of Tc I as combinations between 19 even and 44 odd energy levels, arising from 5 even and 2 odd configurations. A striking result of Meggers' analysis was that the lowest level of the  $4d^65s$  configuration, a  ${}^6D_{4\frac{1}{2}}$ , occurs only 2573  $\text{cm}^{-1}$  above the  $4d^55s^2{}^6S$  ground level. This may be compared with the value 17052  $\text{cm}^{-1}$  for the lowest  $3d^64s$  level in Mn I relative to the  $3d^54s^2{}^6S$  ground level, and with the value 11754  $\text{cm}^{-1}$  for the position of the lowest  $5d^66s$  level above  $5d^56s^2{}^6S$  in Re I.

The second step in the analysis of Tc I was taken by Bozman [3, 4], making use of the new and more extensive description of technetium spectra prepared in 1952 and recently published by Bozman, Meggers and Corliss [5]. In that step of the analysis Bozman made one of the first applications of electronic digital computers to the hitherto tedious work of searching out new energy levels. He found 37 new even and 42 odd energy levels, and classified about 900 lines.

In 1955 and 1956 Bozman observed the Zeeman Effect in Tc I by use of electrodeless lamps [6] containing technetium iodide. Hundreds of patterns were measured by him in the region between 2400 and 7000 Å and a number of them were reduced to determine the magnetic splitting factors ( $g$ -values). Bozman used some of these  $g$ -values to interpret

most of the Tc I levels published in Vol. III of "Atomic Energy Levels," compiled by C. E. Moore [7].

In the dozen years that have elapsed since the initial applications of digital computers to energy level searches, significant advances in programming this problem have been made, notably by G. Racah while visiting NBS and recently by one of the present authors [8]. In the currently undertaken third phase of the analysis of Tc I, Corliss and Tech have applied this latest program to a search for new energy levels.

## 2. Search for New Energy Levels

As the first step in discovering new energy levels in Tc I a special search was made with 61 even and 92 odd levels already known. These levels provided classifications for 914 lines which were then removed from the complete list of 3336 Tc I lines. A search with the remaining unclassified lines yielded 21 new odd levels. With these added to the odd level list, 29 new even levels were found. At this point, 623 more classified lines were removed from the line list. From a second pair of searches 35 odd and 20 even levels were found, classifying 569 lines. A third pair of searches revealed only 2 odd and 7 even levels, whereupon the systematic numerical searches were discontinued.

## 3. Results

The present lists of even and odd levels are given in tables 1 and 2. The term designations assigned by Meggers or Bozman are given in the first column, the  $J$ -values in the second, and the level values in  $\text{cm}^{-1}$  in the third. The number of combinations with each level and the discoverer are given in the last column. Here "M" refers to Meggers (1951), "B" to Bozman

<sup>1</sup> Figures in brackets indicate the literature references at the end of this paper.

and "C" to the levels recently found with the computer. "A" indicates that the level appears in AEL [7].

The list of classified lines with the wavelengths, wavenumbers, intensities, and energy levels is given in table 3. A doubly classified line is indicated by duplicate entries of the line in table 3.

The intensity numbers are in some cases accompanied by literal symbols indicating characteristic features of the lines as follows:

*c*—complex

*d*—double

*h*—hazy

*l*—shaded to longer waves

*s*—shaded to shorter waves

*w*—wide

*tr*—intensity < 1.

About 2200 or two-thirds of the known Tc I lines are now classified.

The assignment of the Tc I energy levels to configurations and terms is proceeding with the reduction of the Zeeman patterns. This analysis, together with the results of theoretical calculations in progress, will appear in a later paper.

TABLE 1. Even levels of Tc I

Config.	Desig.	<i>J</i>	Level	No. Comb.	Config.	Desig.	<i>J</i>	Level	No. Comb.
$4d^5 5s^2$	$a^6S$	2 1/2	0.00	36 MA			2 1/2	22265.46	40 C
$4d^6(a^5D)5s$	$a^6D$	4 1/2	2572.89	36 MA			1 1/2	22503.10	18 C
		3 1/2	3250.91	40 MA			3 1/2	22615.94	32 C
		2 1/2	3700.54	48 MA			3 1/2	23460.03	10 C
		1 1/2	4002.57	37 MA			3 1/2	23957.76	22 C
		0 1/2	4178.75	19 MA			4 1/2	24147.13	18 C
$4d^6(a^3D)5s$	$a^4D$	3 1/2	10516.53	31 MA			5 1/2	24564.76	13 C
		2 1/2	11063.07	49 MA			3 1/2	25058.56	25 C
		1 1/2	11578.60	34 MA			2 1/2	25174.13	27 C
		0 1/2	11890.94	17 MA			1 1/2	25405.69	15 C
$4d^6(^6P)5s$	$a^4P$	2 1/2	13252.74	47 BA			2 1/2	25598.30	22 C
		1 1/2	14169.75	35 BA			2 1/2	26788.59	12 C
		0 1/2	14679.90	22 BA			2 1/2	26883.58	18 C
$4d^6(^3F)5s$	$a^4F$	4 1/2	14733.14	46 BA			5 1/2	26917.97	13 C
		3 1/2	15298.46	50 BA			3 1/2	26950.98	23 C
		2 1/2	15624.25	47 BA			6 1/2	27274.11	7 C
		1 1/2	15770.42	31 BA			2 1/2	27517.24	16 C
$4d^6(^3G)5s$	$a^4G$	5 1/2	16025.15	28 BA			4 1/2	27971.36	22 C
		4 1/2	16133.98	45 BA			5 1/2	28839.40	12 C
		3 1/2	16287.79	46 BA			3 1/2	29233.90	19 C
		2 1/2	16415.64	44 BA			4 1/2	29539.00	28 C
$4d^6(^3H)5s$	$a^4H$	6 1/2	16553.39	9 C			2 1/2	30060.66	10 C
		5 1/2	17146.80	26 B	$4d^5 5s(a^7S)6s$	$e^8S$	3 1/2	37612.40	5 MA
		4 1/2	17328.02	46 B	$4d^5 5s(a^7S)6s$	$e^6S$	2 1/2	39598.86	5 MA
		3 1/2	17282.63	42 B	$4d^6(a^5D)6s$	$e^6D$	4 1/2	42855.24	7 BA
		1 1/2	19702.77	29 B			3 1/2	43391.76	11 BA
		4 1/2	19791.94	42 B			2 1/2	43796.70	15 BA
		0 1/2	19827.50	11 C			1 1/2	44028.92	10 BA
		2 1/2	19895.41	36 B			0 1/2	44149.50	7 BA
		3 1/2	19903.57	45 C	$4d^6(a^5D)6s$	$e^4D$	3 1/2	44101.99	12 BA
		1 1/2	20231.22	25 C			2 1/2	44804.35	10 BA
		3 1/2	20384.74	42 C			1 1/2	45267.82	11 BA
		2 1/2	20523.34	46 B			0 1/2	45497.77	5 BA
		5 1/2	20639.36	18 B	$4d^5 5s(a^7S)5d$	$e^8D$	1 1/2	44333.21	2 MA
		2 1/2	20686.26	34 C			2 1/2	44337.54	5 MA
		3 1/2	20783.83	39 C			3 1/2	44343.90	3 MA
		4 1/2	21204.96	35 B			4 1/2	44352.65	2 MA
		2 1/2	21206.34	33 C			5 1/2	44365.30	1 MA
		1 1/2	21447.45	17 C	$4d^5 5s(a^7S)5d$	$f^6D$	4 1/2	44919.08	4 BA
		4 1/2	21450.48	35 B			3 1/2	44985.53	7 BA
		5 1/2	21719.83	27 B			2 1/2	45071.05	10 BA
		3 1/2	21752.14	32 C			1 1/2	45108.64	9 BA
		2 1/2	21920.15	32 C			0 1/2	45189.70	5 BA
		2 1/2	21926.79	24 C					
		4 1/2	22180.10	33 B					



TABLE 1. Even levels of Tc 1—Continued

Config.	Desig.	<i>J</i>	Level	No. Comb.	Config.	Desig.	<i>J</i>	Level	No. Comb.
		4 1/2	48418.21	7 C			2 1/2	49813.62	10 C
		3 1/2	48462.94	5 C			2 1/2	49938.69	10 C
		3 1/2	48784.86	10 C			2 1/2	53945.19	6 C
		2 1/2	48944.13	11 C			5 1/2	56118.36	5 C
		4 1/2	48977.03	9 C			5 1/2	59315.30	7 C
		3 1/2	49245.93	9 C			3 1/2	62038.26	7 C
		2 1/2	49337.51	7 C			3 1/2	62501.78	8 C
		2 1/2	49565.96	8 C			4 1/2	62599.48	7 C
		3 1/2	49573.35	5 M			2 1/2	63926.66	7 C
		1 1/2	49735.08	11 C			3 1/2	64785.90	7 C

TABLE 2. Odd levels of Tc 1

Config.	Desig.	<i>J</i>	Level	No. Comb.	Config.	Desig.	<i>J</i>	Level	No. Comb.
4d <sup>5</sup> 5s(a <sup>7</sup> S)5p	z <sup>8</sup> P <sup>o</sup>	2 1/2	16428.71	9 MA			3 1/2	39567.76	25 B
		3 1/2	16874.51	9 MA			1 1/2	39576.54	18 B
		4 1/2	17522.92	8 MA			4 1/2	39763.38	18 B
4d <sup>5</sup> 5s(a <sup>7</sup> S)5p	z <sup>6</sup> P <sup>o</sup>	3 1/2	23265.32	17 MA			1 1/2	39844.02	6 B
		2 1/2	23455.21	15 MA			3 1/2	39849.33	7 B
		1 1/2	23588.40	13 MA			2 1/2	39891.05	15 M
4d <sup>6</sup> (a <sup>5</sup> D)5p	z <sup>6</sup> D <sup>o</sup>	4 1/2	27369.79	14 MA			2 1/2	39977.39	24 B
		3 1/2	27660.10	26 MA			1 1/2	40096.61	19 C
		2 1/2	27940.73	20 MA			3 1/2	40236.26	12 C
		1 1/2	28151.28	16 MA			5 1/2	40241.58	12 B
		0 1/2	28296.67	12 MA			2 1/2	40299.14	13 C
4d <sup>6</sup> (a <sup>5</sup> D)5p	z <sup>6</sup> F <sup>o</sup>	5 1/2	30067.29	4 MA			4 1/2	40403.19	19 C
		4 1/2	30133.26	17 MA			3 1/2	40406.40	18 C
		3 1/2	30382.06	21 MA			2 1/2	40821.29	12 C
		2 1/2	30528.86	19 MA			0 1/2	40829.39	9 B
		1 1/2	30630.62	17 MA			1 1/2	41073.16	15 C
		0 1/2	30689.12	8 MA			3 1/2	41088.50	20 C
4d <sup>6</sup> (a <sup>5</sup> D)5p	z <sup>4</sup> F <sup>o</sup>	4 1/2	31114.08	20 MA			2 1/2	41100.21	21 C
		3 1/2	31605.00	30 MA			1 1/2	41250.90	6 B
		2 1/2	32014.81	27 MA			3 1/2	41529.11	22 C
		1 1/2	32253.65	21 MA			5 1/2	41580.75	11 C
4d <sup>6</sup> (a <sup>5</sup> D)5p	y <sup>6</sup> P <sup>o</sup>	3 1/2	31414.05	26 MA			1 1/2	41625.52	11 C
		2 1/2	31406.74	18 MA			4 1/2	41703.59	22 B
		1 1/2	31503.93	15 MA			3 1/2	41729.87	24 C
4d <sup>6</sup> (a <sup>5</sup> D)5p	z <sup>4</sup> P <sup>o</sup>	2 1/2	31927.01	23 MA			2 1/2	41764.26	11 C
		1 1/2	32258.06	24 MA			1 1/2	41788.77	12 B
		0 1/2	32403.06	7 BA			4 1/2	41896.99	23 B
4d <sup>6</sup> (a <sup>5</sup> D)5p	z <sup>4</sup> D <sup>o</sup>	3 1/2	32620.38	26 MA			2 1/2	41922.68	23 B
		2 1/2	33085.69	30 MA			3 1/2	41993.08	20 B
		1 1/2	33343.18	27 MA			5 1/2	42032.57	18 B
		0 1/2	33480.47	12 MA			2 1/2	42102.82	22 B
4d <sup>5</sup> 5s(a <sup>5</sup> S)5p	y <sup>4</sup> P <sup>o</sup>	2 1/2	34515.88	17 MA			4 1/2	42217.08	27 B
		1 1/2	34942.64	16 MA			1 1/2	42217.33	11 B
		0 1/2	35276.45	5 MA			3 1/2	42246.21	17 B
4d <sup>5</sup> 5s(a <sup>5</sup> S)5p	x <sup>6</sup> P <sup>o</sup>	3 1/2	38240.73	9 MA			2 1/2	42250.66	15 C
		2 1/2	38216.75	12 MA			2 1/2	42294.46	22 B
		1 1/2	38319.60	8 MA			5 1/2	42444.33	16 B
		1 1/2	38556.71	5 B			6 1/2	42474.75	8 C
		2 1/2	38600.58	4 M			3 1/2	42523.12	14 B
		3 1/2	38766.20	6 M			4 1/2	42545.01	19 B
		4 1/2	39185.01	6 M			5 1/2	42600.59	12 B
		2 1/2	39459.89	15 C			4 1/2	42613.90	21 C
							2 1/2	42696.45	17 C
							3 1/2	42771.82	27 B
							5 1/2	42773.99	6 C

TABLE 2. *Odd levels of Tc 1—Continued*

Config.	Desig.	<i>J</i>	Level	No. Comb.	Config.	Desig.	<i>J</i>	Level	No. Comb.
		4 1/2	42817.00	18 B			2 1/2	44872.37	16 C
		1 1/2	42901.59	14 C			1 1/2	44876.75	15 B
		2 1/2	42905.60	15 C			1 1/2	44955.88	9 B
		2 1/2	43011.14	21 C			4 1/2	45708.77	15 C
		3 1/2	43077.33	25 C			4 1/2	46068.86	13 C
		4 1/2	43097.77	15 C			2 1/2	46104.89	15 C
		5 1/2	43172.19	15 B			3 1/2	46396.17	14 C
		6 1/2	43197.60	5 B			3 1/2	46608.86	16 C
		4 1/2	43265.51	21 B			3 1/2	46656.07	17 C
		3 1/2	43267.16	27 B			1 1/2	47030.68	9 C
		5 1/2	43512.49	14 C			2 1/2	47232.38	14 C
		2 1/2	43546.50	15 C			2 1/2	47281.86	11 C
		4 1/2	43649.73	21 B			5 1/2	47294.35	8 C
		3 1/2	43805.25	13 C			4 1/2	47343.91	8 C
		6 1/2	43857.24	8 C			3 1/2	47389.74	11 C
		3 1/2	43905.73	25 B			2 1/2	47452.27	16 C
		4 1/2	43971.81	10 C			0 1/2	47670.53	5 B
		2 1/2	44007.00	18 C			4 1/2	47819.66	16 C
		3 1/2	44090.55	18 B			3 1/2	47864.34	13 C
		2 1/2	44107.18	23 C			2 1/2	48142.76	11 C
		1 1/2	44110.04	15 C			4 1/2	48213.49	12 C
		5 1/2	44138.17	15 C			3 1/2	48217.35	11 B
		2 1/2	44241.57	18 C			5 1/2	48287.79	11 C
		3 1/2	44266.89	26 B			4 1/2	48881.75	17 C
		1 1/2	44313.57	16 C			4 1/2	49098.66	10 C
		2 1/2	44537.79	17 B			3 1/2	49130.01	8 C
		4 1/2	44576.08	20 C			4 1/2	49815.88	12 C
		3 1/2	44687.20	16 C			5 1/2	51221.24	6 C
		1 1/2	44722.27	14 B			3 1/2	51423.70	10 C
		3 1/2	44839.20	18 C			4 1/2	52350.24	8 C

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
2154.668	46396.27	2		0 <sub>2 1/2</sub> -46396 <sub>3 1/2</sub> <sup>o</sup>
2271.662	44007.03	3		0 <sub>2 1/2</sub> -44007 <sub>2 1/2</sub> <sup>o</sup>
2272.976	43981.59	2		3250 <sub>3 1/2</sub> -47232 <sub>2 1/2</sub> <sup>o</sup>
2282.121	43805.36	10		0 <sub>2 1/2</sub> -43805 <sub>3 1/2</sub> <sup>o</sup>
2405.128	41565.18	8		2572 <sub>4 1/2</sub> -44138 <sub>5 1/2</sub> <sup>o</sup>
2412.610	41436.29	6		3250 <sub>3 1/2</sub> -44687 <sub>3 1/2</sub> <sup>o</sup>
2418.647	41332.87	5		2572 <sub>4 1/2</sub> -43905 <sub>3 1/2</sub> <sup>o</sup>
2418.647	41332.87	5		2572 <sub>4 1/2</sub> -43905 <sub>3 1/2</sub> <sup>o</sup>
2424.538	41232.45	20	1	2572 <sub>4 1/2</sub> -43805 <sub>3 1/2</sub> <sup>o</sup>
2427.848	41176.24	3		3700 <sub>2 1/2</sub> -44876 <sub>1 1/2</sub> <sup>o</sup>
2432.337	41100.25	2		0 <sub>2 1/2</sub> -41100 <sub>2 1/2</sub> <sup>o</sup>
2433.728	41076.76	8		2572 <sub>4 1/2</sub> -43649 <sub>4 1/2</sub> <sup>o</sup>
2436.994	41021.71	10		3700 <sub>2 1/2</sub> -44722 <sub>1 1/2</sub> <sup>o</sup>
2439.081	40986.62	5		3700 <sub>2 1/2</sub> -44687 <sub>3 1/2</sub> <sup>o</sup>
2446.049	40869.87	3		4002 <sub>1 1/2</sub> -44872 <sub>2 1/2</sub> <sup>o</sup>
2446.864	40856.26	4		3250 <sub>3 1/2</sub> -44107 <sub>2 1/2</sub> <sup>o</sup>
2447.860	40839.63	3		3250 <sub>3 1/2</sub> -44090 <sub>3 1/2</sub> <sup>o</sup>
2456.386	40697.89	2		4178 <sub>0 1/2</sub> -44876 <sub>1 1/2</sub> <sup>o</sup>
2458.994	40654.73	10		3250 <sub>3 1/2</sub> -43905 <sub>3 1/2</sub> <sup>o</sup>
2461.523	40612.96	9		3700 <sub>2 1/2</sub> -44313 <sub>1 1/2</sub> <sup>o</sup>
2465.086	40554.27	20	1	3250 <sub>3 1/2</sub> -43805 <sub>3 1/2</sub> <sup>o</sup>
2465.740	40543.51	10	1	4178 <sub>0 1/2</sub> -44722 <sub>1 1/2</sub> <sup>o</sup>
2466.873	40524.89	30	1	2572 <sub>4 1/2</sub> -43097 <sub>4 1/2</sub> <sup>o</sup>
2468.114	40504.52	3		2572 <sub>4 1/2</sub> -43077 <sub>3 1/2</sub> <sup>o</sup>
2473.915	40409.55	8		3700 <sub>2 1/2</sub> -44110 <sub>1 1/2</sub> <sup>o</sup>
2474.570	40398.85	2		3250 <sub>3 1/2</sub> -43649 <sub>4 1/2</sub> <sup>o</sup>
2475.107	40390.09	20		3700 <sub>2 1/2</sub> -44090 <sub>3 1/2</sub> <sup>o</sup>
2480.699	40299.05	50		0 <sub>2 1/2</sub> -40299 <sub>2 1/2</sub> <sup>o</sup>
2484.080	40244.20	4		2572 <sub>4 1/2</sub> -42817 <sub>4 1/2</sub> <sup>o</sup>
2484.572	40236.23	8	8	0 <sub>2 1/2</sub> -40236 <sub>3 1/2</sub> <sup>o</sup>
2486.496	40205.10	20		3700 <sub>2 1/2</sub> -43905 <sub>3 1/2</sub> <sup>o</sup>
2486.884	40198.83	2		2572 <sub>4 1/2</sub> -42771 <sub>3 1/2</sub> <sup>o</sup>
2490.854	40134.76	10		4178 <sub>0 1/2</sub> -44313 <sub>1 1/2</sub> <sup>o</sup>
2492.721	40104.70	25	3	3700 <sub>2 1/2</sub> -43805 <sub>3 1/2</sub> <sup>o</sup>
2492.721	40104.70	25	3	4002 <sub>1 1/2</sub> -44107 <sub>2 1/2</sub> <sup>o</sup>
2500.654	39977.48	2		0 <sub>2 1/2</sub> -39977 <sub>2 1/2</sub> <sup>o</sup>
2500.990	39972.11	15	1	2572 <sub>4 1/2</sub> -42545 <sub>4 1/2</sub> <sup>o</sup>
2502.363	39950.18	7	1	2572 <sub>4 1/2</sub> -42523 <sub>3 1/2</sub> <sup>o</sup>
2503.550	39931.24	6		4178 <sub>0 1/2</sub> -44110 <sub>1 1/2</sub> <sup>o</sup>
2508.853	39846.85	10		3250 <sub>3 1/2</sub> -43097 <sub>4 1/2</sub> <sup>o</sup>
2521.679	39644.19	2		2572 <sub>4 1/2</sub> -42217 <sub>4 1/2</sub> <sup>o</sup>
2526.548	39567.79	3		0 <sub>2 1/2</sub> -39567 <sub>3 1/2</sub> <sup>o</sup>
2529.550	39520.84	2		3250 <sub>3 1/2</sub> -42771 <sub>3 1/2</sub> <sup>o</sup>
2533.467	39459.74	10	1	2572 <sub>4 1/2</sub> -42032 <sub>5 1/2</sub> <sup>o</sup>
2538.804	39376.79	2		3700 <sub>2 1/2</sub> -43077 <sub>3 1/2</sub> <sup>o</sup>
2544.144	39294.15	2		3250 <sub>3 1/2</sub> -42545 <sub>4 1/2</sub> <sup>o</sup>
2545.565	39272.21	15	1	3250 <sub>3 1/2</sub> -42523 <sub>3 1/2</sub> <sup>o</sup>
2562.818	39007.85	10		2572 <sub>4 1/2</sub> -41580 <sub>5 1/2</sub> <sup>o</sup>
2563.349	38999.77	2		3250 <sub>3 1/2</sub> -42250 <sub>2 1/2</sub> <sup>o</sup>
2565.560	38966.16	4		3250 <sub>3 1/2</sub> -42217 <sub>4 1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
2578.791	38766.25	300 <i>h l</i>	100 <i>h l</i>	0 <sub>2 1/2</sub> —38766 <sup>o</sup> <sub>3 1/2</sub>
2589.861	38600.56	200	3	0 <sub>2 1/2</sub> —38600 <sup>o</sup> <sub>2 1/2</sub>
2592.816	38556.57	100	5	0 <sub>2 1/2</sub> —38556 <sup>o</sup> <sub>1 1/2</sub>
2593.247	38550.16	10		3700 <sub>2 1/2</sub> —42250 <sup>o</sup> <sub>2 1/2</sub>
2605.753	38365.16	4		10516 <sub>3 1/2</sub> —48881 <sup>o</sup> <sub>4 1/2</sub>
2608.855	38319.54	500	15	0 <sub>2 1/2</sub> —38319 <sup>o</sup> <sub>1 1/2</sub>
2614.233	38240.72	1500	30	0 <sub>2 1/2</sub> —38240 <sup>o</sup> <sub>3 1/2</sub>
2615.873	38216.74	1000	20	0 <sub>2 1/2</sub> —38216 <sup>o</sup> <sub>2 1/2</sub>
2642.372	37833.51	100		2572 <sub>4 1/2</sub> —40406 <sup>o</sup> <sub>3 1/2</sub>
2654.306	37663.42	100	3	2572 <sub>4 1/2</sub> —40236 <sup>o</sup> <sub>3 1/2</sub>
2657.572	37617.13	1	1	14733 <sub>4 1/2</sub> —52350 <sup>o</sup> <sub>4 1/2</sub>
2660.884	37570.31	120	30 <i>l</i>	3250 <sub>3 1/2</sub> —40821 <sup>o</sup> <sub>2 1/2</sub>
2662.296	37550.39	100	2	3700 <sub>2 1/2</sub> —41250 <sup>o</sup> <sub>1 1/2</sub>
2669.654	37446.90	1		4178 <sub>0 1/2</sub> —41625 <sup>o</sup> <sub>1 1/2</sub>
2673.024	37399.69	6		3700 <sub>2 1/2</sub> —41100 <sup>o</sup> <sub>2 1/2</sub>
2683.886	37248.34	80	1	4002 <sub>1 1/2</sub> —41250 <sup>o</sup> <sub>1 1/2</sub>
2688.059	37190.52	20		2572 <sub>4 1/2</sub> —39763 <sup>o</sup> <sub>4 1/2</sub>
2690.673	37154.39	12		11063 <sub>2 1/2</sub> —48217 <sup>o</sup> <sub>3 1/2</sub>
2693.112	37120.74	80	2	3700 <sub>2 1/2</sub> —40821 <sup>o</sup> <sub>2 1/2</sub>
2694.780	37097.77	10		4002 <sub>1 1/2</sub> —41100 <sup>o</sup> <sub>2 1/2</sub>
2696.636	37072.23	50		4178 <sub>0 1/2</sub> —41250 <sup>o</sup> <sub>1 1/2</sub>
2696.755	37070.60	15	1	4002 <sub>1 1/2</sub> —41073 <sup>o</sup> <sub>1 1/2</sub>
2702.271	36994.93	70		2572 <sub>4 1/2</sub> —39567 <sup>o</sup> <sub>3 1/2</sub>
2714.600	36826.92	2		4002 <sub>1 1/2</sub> —40829 <sup>o</sup> <sub>0 1/2</sub>
2715.205	36818.72	30		4002 <sub>1 1/2</sub> —40821 <sup>o</sup> <sub>2 1/2</sub>
2723.550	36705.91	30		3700 <sub>2 1/2</sub> —40406 <sup>o</sup> <sub>3 1/2</sub>
2730.529	36612.10	500	10	2572 <sub>4 1/2</sub> —39184 <sup>o</sup> <sub>4 1/2</sub>
2736.231	36535.81	150		3700 <sub>2 1/2</sub> —40236 <sup>o</sup> <sub>3 1/2</sub>
2737.973	36512.56	100	1	3250 <sub>3 1/2</sub> —39763 <sup>o</sup> <sub>4 1/2</sub>
2739.819	36487.96	3		14733 <sub>4 1/2</sub> —51221 <sup>o</sup> <sub>5 1/2</sub>
2755.761	36276.89	100	8	3700 <sub>2 1/2</sub> —39977 <sup>o</sup> <sub>2 1/2</sub>
2760.380	36216.19	7		16133 <sub>4 1/2</sub> —52350 <sup>o</sup> <sub>4 1/2</sub>
2762.134	36193.19	100	3	2572 <sub>4 1/2</sub> —38766 <sup>o</sup> <sub>3 1/2</sub>
2762.337	36190.53	200	8	3700 <sub>2 1/2</sub> —39891 <sup>o</sup> <sub>2 1/2</sub>
2763.957	36169.32	8		11063 <sub>2 1/2</sub> —47232 <sup>o</sup> <sub>2 1/2</sub>
2769.714	36094.15	5		4002 <sub>1 1/2</sub> —40096 <sup>o</sup> <sub>1 1/2</sub>
2778.908	35974.74	150	9	4002 <sub>1 1/2</sub> —39977 <sup>o</sup> <sub>2 1/2</sub>
2782.052	35934.08	1000	15	3250 <sub>3 1/2</sub> —39184 <sup>o</sup> <sub>4 1/2</sub>
2785.586	35888.50	500	10	4002 <sub>1 1/2</sub> —39891 <sup>o</sup> <sub>2 1/2</sub>
2787.234	35867.28	15	2	3700 <sub>2 1/2</sub> —39567 <sup>o</sup> <sub>3 1/2</sub>
2789.246	35841.41	500		4002 <sub>1 1/2</sub> —39844 <sup>o</sup> <sub>1 1/2</sub>
2795.650	35759.31	80		3700 <sub>2 1/2</sub> —39459 <sup>o</sup> <sub>2 1/2</sub>
2802.810	35667.96	1000	8	2572 <sub>4 1/2</sub> —38240 <sup>o</sup> <sub>3 1/2</sub>
2803.018	35665.32	150	3	4178 <sub>0 1/2</sub> —39844 <sup>o</sup> <sub>1 1/2</sub>
2803.921	35653.83	8		11578 <sub>1 1/2</sub> —47232 <sup>o</sup> <sub>2 1/2</sub>
2810.225	35573.86	15		4002 <sub>1 1/2</sub> —39576 <sup>o</sup> <sub>1 1/2</sub>
2812.447	35545.75	3		11063 <sub>2 1/2</sub> —46608 <sup>o</sup> <sub>3 1/2</sub>
2814.860	35515.28	30		3250 <sub>3 1/2</sub> —38766 <sup>o</sup> <sub>3 1/2</sub>
2819.460	35457.34	40	1	4002 <sub>1 1/2</sub> —39459 <sup>o</sup> <sub>2 1/2</sub>
2828.042	35349.75	200	10	3250 <sub>3 1/2</sub> —38600 <sup>o</sup> <sub>2 1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
2829.375	35333.09	5		11063 $2_{1/2}$ —46396 $^a_{3/2}$
2849.196	35087.30	60	3	16133 $4_{1/2}$ —51221 $^a_{5/2}$
2850.956	35065.64	150	10	3700 $2_{1/2}$ —38766 $^a_{3/2}$
2855.637	35008.17	10	1	16415 $2_{1/2}$ —51423 $^a_{3/2}$
2857.128	34989.90	500 $h$	7	3250 $3_{1/2}$ —38240 $^a_{3/2}$
2859.110	34965.64	2000 $c$	200 $c$	3250 $3_{1/2}$ —38216 $^a_{2/2}$
2860.988	34942.69	15		0 $2_{1/2}$ —34942 $^a_{1/2}$
2864.486	34900.03	500	8	3700 $2_{1/2}$ —38600 $^a_{2/2}$
2868.087	34856.21	100	3	3700 $2_{1/2}$ —38556 $^a_{1/2}$
2869.283	34841.68	20		27660 $^a_{3/2}$ —62501 $3_{1/2}$
2883.670	34667.86	5		16553 $6_{1/2}$ —51221 $^a_{5/2}$
2887.734	34619.07	1000	8	3700 $2_{1/2}$ —38319 $^a_{1/2}$
2889.487	34598.07	3		4002 $1_{1/2}$ —38600 $^a_{2/2}$
2893.160	34554.15	200	2	4002 $1_{1/2}$ —38556 $^a_{1/2}$
2894.322	34540.28	200	2	3700 $2_{1/2}$ —38240 $^a_{3/2}$
2896.340	34516.21	1000	10	3700 $2_{1/2}$ —38216 $^a_{2/2}$
2896.340	34516.21	1000	10	0 $2_{1/2}$ —34515 $^a_{2/2}$
2907.982	34378.03	15		4178 $0_{1/2}$ —38556 $^a_{1/2}$
2909.036	34365.58	7		14733 $4_{1/2}$ —49098 $^a_{4/2}$
2909.852	34355.94	5		10516 $3_{1/2}$ —44872 $^a_{2/2}$
2913.147	34317.08	1000	7	4002 $1_{1/2}$ —38319 $^a_{1/2}$
2921.912	34214.15	500	2	4002 $1_{1/2}$ —38216 $^a_{2/2}$
2923.155	34199.60	5		13252 $2_{1/2}$ —47452 $^a_{2/2}$
2928.198	34140.70	1000	2	4178 $0_{1/2}$ —38319 $^a_{1/2}$
2932.062	34095.71	4		17328 $4_{1/2}$ —51423 $^a_{3/2}$
2933.888	34074.49	80		17146 $5_{1/2}$ —51221 $^a_{5/2}$
2937.801	34029.11	6		13252 $2_{1/2}$ —47281 $^a_{2/2}$
2942.082	33979.60	30	1	13252 $2_{1/2}$ —47232 $^a_{2/2}$
2949.580	33893.22	25	1	17328 $4_{1/2}$ —51221 $^a_{5/2}$
2964.287	33725.07	20		10516 $3_{1/2}$ —44241 $^a_{2/2}$
2973.179	33624.21	18		11063 $2_{1/2}$ —44687 $^a_{3/2}$
2979.338	33554.71	100	3	14733 $4_{1/2}$ —48287 $^a_{5/2}$
2984.137	33500.75	20	1	14169 $1_{1/2}$ —47670 $^a_{0/2}$
2985.046	33490.55	15		10516 $3_{1/2}$ —44007 $^a_{2/2}$
2985.601	33484.32	8		14733 $4_{1/2}$ —48217 $^a_{3/2}$
2986.453	33474.77	15		11063 $2_{1/2}$ —44537 $^a_{2/2}$
2994.097	33389.31	15	8	10516 $3_{1/2}$ —43905 $^a_{3/2}$
2997.076	33356.12	20		13252 $2_{1/2}$ —46608 $^a_{3/2}$
2998.235	33343.23	6		0 $2_{1/2}$ —33343 $^a_{1/2}$
3003.698	33282.59	30	1	14169 $1_{1/2}$ —47452 $^a_{2/2}$
3010.831	33203.74	100	2	11063 $2_{1/2}$ —44266 $^a_{3/2}$
3016.298	33143.56	12		11578 $1_{1/2}$ —44722 $^a_{1/2}$
3017.232	33133.30	300	7	10516 $3_{1/2}$ —43649 $^a_{4/2}$
3021.555	33085.90	150	2	0 $2_{1/2}$ —33085 $^a_{2/2}$
3023.680	33062.65	200	3	14169 $1_{1/2}$ —47232 $^a_{2/2}$
3026.887	33027.62	300 $w$	200 $w$	11063 $2_{1/2}$ —44090 $^a_{3/2}$
3030.276	32990.69	6		14679 $0_{1/2}$ —47670 $^a_{0/2}$
3030.718	32985.87	2		11890 $0_{1/2}$ —44876 $^a_{1/2}$
3034.568	32944.03	80		11063 $2_{1/2}$ —44007 $^a_{2/2}$
3036.878	32918.97	40	2	15298 $3_{1/2}$ —48217 $^a_{3/2}$

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3042.643	32856.60	40	2	16025 <sub>5/2</sub> —48881 <sub>4/2</sub> <sup>a</sup>
3043.049	32852.22	12	1	13252 <sub>2/2</sub> —46104 <sub>2/2</sub> <sup>a</sup>
3043.774	32844.39	8		15298 <sub>3/2</sub> —48142 <sub>2/2</sub> <sup>a</sup>
3043.938	32842.62	8		11063 <sub>2/2</sub> —43905 <sub>3/2</sub> <sup>a</sup>
3044.978	32831.40	10		11890 <sub>0/2</sub> —44722 <sub>1/2</sub> <sup>a</sup>
3057.327	32698.80	30	2	16874 <sub>3/2</sub> —49573 <sub>3/2</sub> <sup>a</sup>
3060.103	32669.14	4		17146 <sub>5/2</sub> —49815 <sub>4/2</sub> <sup>a</sup>
3060.672	32663.06	30	1	11578 <sub>1/2</sub> —44241 <sub>2/2</sub> <sup>a</sup>
3061.283	32656.54	3		14733 <sub>4/2</sub> —47389 <sub>3/2</sub> <sup>a</sup>
3064.667	32620.49	300	3	0 <sub>2/2</sub> —32620 <sub>3/2</sub> <sup>a</sup>
3070.241	32561.27	30		14733 <sub>4/2</sub> —47294 <sub>2/2</sub> <sup>a</sup>
3073.046	32531.55	10		11578 <sub>1/2</sub> —44110 <sub>1/2</sub> <sup>a</sup>
3073.326	32528.58	12		11578 <sub>1/2</sub> —44107 <sub>2/2</sub> <sup>a</sup>
3074.270	32518.60	20	1	15624 <sub>2/2</sub> —48142 <sub>2/2</sub> <sup>a</sup>
3076.528	32494.73	10		10516 <sub>3/2</sub> —43011 <sub>2/2</sub> <sup>a</sup>
3077.591	32483.51	3		11063 <sub>2/2</sub> —43546 <sub>2/2</sub> <sup>a</sup>
3081.075	32446.78	15	1	19903 <sub>3/2</sub> —52350 <sub>4/2</sub> <sup>a</sup>
3083.354	32422.79	20		31503 <sub>1/2</sub> —63926 <sub>2/2</sub> <sup>a</sup>
3098.657	32262.68	20		16025 <sub>5/2</sub> —48287 <sub>5/2</sub> <sup>a</sup>
3099.098	32258.09	1000	10	0 <sub>2/2</sub> —32258 <sub>1/2</sub> <sup>a</sup>
3099.517	32253.73	200	2	0 <sub>2/2</sub> —32253 <sub>1/2</sub> <sup>a</sup>
3104.293	32204.11	30	1	11063 <sub>2/2</sub> —43267 <sub>3/2</sub> <sup>a</sup>
3109.151	32153.79	40		16133 <sub>4/2</sub> —48287 <sub>5/2</sub> <sup>a</sup>
3115.977	32083.35	60	2	16133 <sub>4/2</sub> —48217 <sub>3/2</sub> <sup>a</sup>
3119.171	32050.50	80	6	17522 <sub>4/2</sub> —49573 <sub>3/2</sub> <sup>a</sup>
3119.662	32045.46	40	1	15298 <sub>3/2</sub> —47343 <sub>4/2</sub> <sup>a</sup>
3121.306	32028.58	10 <sup>h</sup>		10516 <sub>3/2</sub> —42545 <sub>4/2</sub> <sup>a</sup>
3122.642	32014.88	700	3	0 <sub>2/2</sub> —32014 <sub>2/2</sub> <sup>a</sup>
3127.464	31965.52	2		20384 <sub>3/2</sub> —52350 <sub>4/2</sub> <sup>a</sup>
3131.233	31927.04	1500	20	0 <sub>2/2</sub> —31927 <sub>2/2</sub> <sup>a</sup>
3138.322	31854.93	20		16287 <sub>3/2</sub> —48142 <sub>2/2</sub> <sup>a</sup>
3139.936	31838.55	25		11063 <sub>2/2</sub> —42901 <sub>1/2</sub> <sup>a</sup>
3143.561	31801.84	4		16415 <sub>2/2</sub> —48217 <sub>3/2</sub> <sup>a</sup>
3144.291	31794.46	20		16025 <sub>5/2</sub> —47819 <sub>4/2</sub> <sup>a</sup>
3145.937	31777.82	6		10516 <sub>3/2</sub> —42294 <sub>2/2</sub> <sup>a</sup>
3147.160	31765.48	15	1	15624 <sub>2/2</sub> —47389 <sub>3/2</sub> <sup>a</sup>
3150.265	31734.17	40 <sup>c</sup>	5 <sup>c</sup>	10516 <sub>3/2</sub> —42250 <sub>2/2</sub> <sup>a</sup>
3150.650	31730.29	8		16133 <sub>4/2</sub> —47864 <sub>3/2</sub> <sup>a</sup>
3152.779	31708.86	3		11063 <sub>2/2</sub> —42771 <sub>3/2</sub> <sup>a</sup>
3153.353	31703.09	20		13252 <sub>2/2</sub> —44955 <sub>1/2</sub> <sup>a</sup>
3155.079	31685.75	2		16133 <sub>4/2</sub> —47819 <sub>4/2</sub> <sup>a</sup>
3155.476	31681.76	5		15770 <sub>1/2</sub> —47452 <sub>2/2</sub> <sup>a</sup>
3157.339	31663.07	5		14733 <sub>4/2</sub> —46396 <sub>3/2</sub> <sup>a</sup>
3160.463	31631.77	2		19791 <sub>4/2</sub> —51423 <sub>3/2</sub> <sup>a</sup>
3161.674	31619.66	300	8	13252 <sub>2/2</sub> —44872 <sub>2/2</sub> <sup>a</sup>
3163.140	31605.00	12		0 <sub>2/2</sub> —31605 <sub>3/2</sub> <sup>a</sup>
3165.003	31586.40	6		10516 <sub>3/2</sub> —42102 <sub>2/2</sub> <sup>a</sup>
3166.993	31566.55	3		20783 <sub>3/2</sub> —52350 <sub>4/2</sub> <sup>a</sup>
3168.271	31553.82	1		17328 <sub>4/2</sub> —48881 <sub>4/2</sub> <sup>a</sup>
3170.484	31531.80	1		16287 <sub>3/2</sub> —47819 <sub>4/2</sub> <sup>a</sup>



TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3170.833	31528.33	3		19895 <sub>2 1/2</sub> —51423 <sub>3 1/2</sub> <sup>a</sup>
3173.295	31503.87	3000	100	0 <sub>2 1/2</sub> —31503 <sub>1 1/2</sub> <sup>a</sup>
3177.714	31460.06	6		11063 <sub>2 1/2</sub> —42523 <sub>3 1/2</sub> <sup>a</sup>
3180.305	31434.43	200	3	13252 <sub>2 1/2</sub> —44687 <sub>3 1/2</sub> <sup>a</sup>
3182.367	31414.06	2000	60	0 <sub>2 1/2</sub> —31414 <sub>3 1/2</sub> <sup>a</sup>
3183.108	31406.75	2000	60	0 <sub>2 1/2</sub> —31406 <sub>2 1/2</sub> <sup>a</sup>
3191.620	31322.99	10		11578 <sub>1 1/2</sub> —42901 <sub>1 1/2</sub> <sup>a</sup>
3192.051	31318.76	20		16025 <sub>5 1/2</sub> —47343 <sub>4 1/2</sub> <sup>a</sup>
3192.905	31310.38	2		15298 <sub>3 1/2</sub> —46608 <sub>3 1/2</sub> <sup>a</sup>
3195.485	31285.11	20		13252 <sub>2 1/2</sub> —44537 <sub>2 1/2</sub> <sup>a</sup>
3197.530	31265.10	40 <sub>w</sub>		3250 <sub>3 1/2</sub> —34515 <sub>2 1/2</sub> <sup>a</sup>
3198.497	31255.65	15	3	16133 <sub>4 1/2</sub> —47389 <sub>3 1/2</sub> <sup>a</sup>
3200.980	31231.40	8		11063 <sub>2 1/2</sub> —42294 <sub>2 1/2</sub> <sup>a</sup>
3202.831	31213.35	300 <sub>c</sub>	6 <sub>c</sub>	10516 <sub>3 1/2</sub> —41729 <sub>3 1/2</sub> <sup>a</sup>
3205.474	31187.62	4		11063 <sub>2 1/2</sub> —42250 <sub>2 1/2</sub> <sup>a</sup>
3207.866	31164.36	4		16287 <sub>3 1/2</sub> —47452 <sub>2 1/2</sub> <sup>a</sup>
3208.270	31160.44	6		16133 <sub>4 1/2</sub> —47294 <sub>3 1/2</sub> <sup>a</sup>
3208.904	31154.28	5		11063 <sub>2 1/2</sub> —42217 <sub>1 1/2</sub> <sup>a</sup>
3209.838	31145.22	1		21204 <sub>4 1/2</sub> —52350 <sub>4 1/2</sub> <sup>a</sup>
3214.738	31097.75	3		4178 <sub>0 1/2</sub> —35276 <sub>0 1/2</sub> <sup>a</sup>
3215.764	31087.83	3		31414 <sub>3 1/2</sub> —62501 <sub>3 1/2</sub> <sup>a</sup>
3217.956	31066.65	2		17146 <sub>5 1/2</sub> —48213 <sub>4 1/2</sub> <sup>a</sup>
3218.559	31060.83	10		13252 <sub>2 1/2</sub> —44313 <sub>1 1/2</sub> <sup>a</sup>
3219.052	31056.07	3		16287 <sub>3 1/2</sub> —47343 <sub>4 1/2</sub> <sup>a</sup>
3220.737	31039.83	40	2	11063 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub> <sup>a</sup>
3221.573	31031.77	1		15624 <sub>2 1/2</sub> —46656 <sub>3 1/2</sub> <sup>a</sup>
3223.762	31010.70	3		11890 <sub>0 1/2</sub> —42901 <sub>1 1/2</sub> <sup>a</sup>
3225.500	30993.99	2		16287 <sub>3 1/2</sub> —47281 <sub>2 1/2</sub> <sup>a</sup>
3226.044	30988.77	15		13252 <sub>2 1/2</sub> —44241 <sub>2 1/2</sub> <sup>a</sup>
3227.412	30975.63	4		14733 <sub>4 1/2</sub> —45708 <sub>4 1/2</sub> <sup>a</sup>
3230.640	30944.68	1		16287 <sub>3 1/2</sub> —47232 <sub>2 1/2</sub> <sup>a</sup>
3231.114	30940.14	15		4002 <sub>1 1/2</sub> —34942 <sub>4 1/2</sub> <sup>a</sup>
3236.439	30889.24	5		17328 <sub>4 1/2</sub> —48217 <sub>3 1/2</sub> <sup>a</sup>
3239.789	30857.30	5		13252 <sub>2 1/2</sub> —44110 <sub>1 1/2</sub> <sup>a</sup>
3241.837	30837.81	100	5	13252 <sub>2 1/2</sub> —44090 <sub>3 1/2</sub> <sup>a</sup>
3244.193	30815.41	500	15	3700 <sub>2 1/2</sub> —34515 <sub>2 1/2</sub> <sup>a</sup>
3249.600	30764.14	10		4178 <sub>0</sub> —34942 <sub>1 1/2</sub> <sup>a</sup>
3250.638	30754.32	10		13252 <sub>2 1/2</sub> —44007 <sub>2 1/2</sub> <sup>a</sup>
3252.048	30740.98	300	10	16553 <sub>6 1/2</sub> —47294 <sub>5 1/2</sub> <sup>a</sup>
3254.700	30715.93	10		11578 <sub>1 1/2</sub> —42294 <sub>2 1/2</sub> <sup>a</sup>
3256.102	30702.71	40	2	14169 <sub>1 1/2</sub> —44872 <sub>2 1/2</sub> <sup>a</sup>
3259.261	30672.95	3	1	17146 <sub>5 1/2</sub> —47819 <sub>4 1/2</sub> <sup>a</sup>
3259.910	30666.85	10	5	11063 <sub>2 1/2</sub> —41729 <sub>3 1/2</sub> <sup>a</sup>
3261.370	30653.12	20	3	13252 <sub>2 1/2</sub> —43905 <sub>3 1/2</sub> <sup>a</sup>
3262.896	30638.78	6	2 <sub>h</sub>	11578 <sub>1 1/2</sub> —42217 <sub>1 1/2</sub> <sup>a</sup>
3272.111	30552.50	10	2	14169 <sub>1 1/2</sub> —44722 <sub>1 1/2</sub> <sup>a</sup>
3276.29	30513.54	5		4002 <sub>1 1/2</sub> —34515 <sub>2 1/2</sub> <sup>a</sup>
3281.392	30466.09	6		11063 <sub>2 1/2</sub> —41529 <sub>3 1/2</sub> <sup>a</sup>
3291.960	30368.29	20	1	16287 <sub>3 1/2</sub> —46656 <sub>3 1/2</sub> <sup>a</sup>
3296.504	30326.43	10		11890 <sub>0 1/2</sub> —42217 <sub>1 1/2</sub> <sup>a</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3297.074	30321.19	3		16287 <sub>3/2</sub> —46608 <sup>a</sup> <sub>3/2</sub>
3301.990	30276.05	20		14679 <sub>0/2</sub> —44955 <sup>a</sup> <sub>1/2</sub>
3303.510	30262.12	6		16133 <sub>4/2</sub> —46396 <sup>a</sup> <sub>3/2</sub>
3305.891	30240.32	80	10	16415 <sub>2/2</sub> —46656 <sup>a</sup> <sub>3/2</sub>
3310.646	30196.89	200	15	14679 <sub>0/2</sub> —44876 <sup>a</sup> <sub>1/2</sub>
3311.051	30193.20	20	2	16415 <sub>2/2</sub> —46608 <sup>a</sup> <sub>3/2</sub>
3313.652	30169.50	150	5	17282 <sub>3/2</sub> —47452 <sup>a</sup> <sub>2/2</sub>
3327.102	30047.54	150 <i>cw</i>	1 <i>c</i>	2572 <sub>4/2</sub> —32620 <sup>a</sup> <sub>3/2</sub>
3327.665	30042.46	1		14679 <sub>0/2</sub> —44722 <sup>a</sup> <sub>1/2</sub>
3328.252	30037.16	5		11063 <sub>2/2</sub> —41100 <sup>a</sup> <sub>2/2</sub>
3330.766	30014.49	100	2	13252 <sub>2/2</sub> —43267 <sup>a</sup> <sub>3/2</sub>
3332.468	29999.16	50	2	17282 <sub>3/2</sub> —47281 <sup>a</sup> <sub>2/2</sub>
3337.486	29954.05	10	2 <i>h l</i>	14733 <sub>4/2</sub> —44687 <sup>a</sup> <sub>3/2</sub>
3337.977	29949.65	5		17282 <sub>3/2</sub> —47232 <sup>a</sup> <sub>2/2</sub>
3339.332	29937.50	6		14169 <sub>1/2</sub> —44107 <sup>a</sup> <sub>2/2</sub>
3342.141	29912.34	3		19903 <sub>3/2</sub> —49815 <sup>a</sup> <sub>4/2</sub>
3343.770	29897.76	10		11890 <sub>0/2</sub> —41788 <sup>a</sup> <sub>1/2</sub>
3345.016	29886.63	15 <i>w</i>		10516 <sub>3/2</sub> —40403 <sup>a</sup> <sub>4/2</sub>
3350.563	29837.15	60	3	14169 <sub>1/2</sub> —44007 <sup>a</sup> <sub>2/2</sub>
3350.830	29834.77	50 <i>c</i>	1 <i>h</i>	3250 <sub>3/2</sub> —33085 <sup>a</sup> <sub>2/2</sub>
3351.985	29824.49	1		13252 <sub>2/2</sub> —43077 <sup>a</sup> <sub>3/2</sub>
3356.884	29780.97	8		16287 <sub>3/2</sub> —46068 <sup>a</sup> <sub>4/2</sub>
3358.038	29770.73	12		21450 <sub>4/2</sub> —51221 <sup>a</sup> <sub>5/2</sub>
3362.156	29734.27	1		22615 <sub>3/2</sub> —52350 <sup>a</sup> <sub>4/2</sub>
3371.402	29652.73	5		13252 <sub>2/2</sub> —42905 <sup>a</sup> <sub>2/2</sub>
3372.543	29642.70	8		3700 <sub>2/2</sub> —33343 <sup>a</sup> <sub>1/2</sub>
3373.572	29633.66	25	1	14679 <sub>0/2</sub> —44313 <sup>a</sup> <sub>1/2</sub>
3386.387	29521.52	20		11578 <sub>1/2</sub> —41100 <sup>a</sup> <sub>2/2</sub>
3386.674	29519.02	40	1	13252 <sub>2/2</sub> —42771 <sup>a</sup> <sub>3/2</sub>
3388.459	29503.47	8		21920 <sub>2/2</sub> —51423 <sup>a</sup> <sub>3/2</sub>
3389.492	29494.47	12		11578 <sub>1/2</sub> —41073 <sup>a</sup> <sub>1/2</sub>
3396.903	29430.13	60	1	14679 <sub>0/2</sub> —44110 <sup>a</sup> <sub>1/2</sub>
3398.327	29417.80	300	6	32620 <sub>3/2</sub> —62038 <sup>a</sup> <sub>3/2</sub>
3401.681	29388.79	25	1	15298 <sub>3/2</sub> —44687 <sup>a</sup> <sub>3/2</sub>
3402.105	29385.13	200	4	3700 <sub>2/2</sub> —33085 <sup>a</sup> <sub>2/2</sub>
3403.330	29374.55	3		10516 <sub>3/2</sub> —39891 <sup>a</sup> <sub>2/2</sub>
3403.931	29369.37	200 <i>c</i>	2	3250 <sub>3/2</sub> —32620 <sup>a</sup> <sub>3/2</sub>
3405.328	29357.32	80	5	14733 <sub>4/2</sub> —44090 <sup>a</sup> <sub>3/2</sub>
3406.964	29343.22	10		11063 <sub>2/2</sub> —40406 <sup>a</sup> <sub>3/2</sub>
3407.281	29340.49	80		4002 <sub>1/2</sub> —33343 <sup>a</sup> <sub>1/2</sub>
3411.804	29301.60	40		4178 <sub>0/2</sub> —33480 <sup>a</sup> <sub>0/2</sub>
3414.600	29277.60	10		15298 <sub>3/2</sub> —44576 <sup>a</sup> <sub>4/2</sub>
3415.448	29270.34	15	1	13252 <sub>2/2</sub> —42523 <sup>a</sup> <sub>3/2</sub>
3417.738	29250.72	10		11578 <sub>1/2</sub> —40829 <sup>a</sup> <sub>0/2</sub>
3418.053	29248.03	20	1	15624 <sub>2/2</sub> —44872 <sup>a</sup> <sub>2/2</sub>
3418.203	29246.75	40 <i>cw</i>	1	10516 <sub>3/2</sub> —39763 <sup>a</sup> <sub>4/2</sub>
3418.581	29243.51	15		22180 <sub>4/2</sub> —51423 <sup>a</sup> <sub>3/2</sub>
3419.451	29236.07	15		11063 <sub>2/2</sub> —40299 <sup>a</sup> <sub>2/2</sub>
3420.583	29226.40	2		19903 <sub>3/2</sub> —49130 <sup>a</sup> <sub>3/2</sub>
3425.382	29185.45	20		15770 <sub>1/2</sub> —44955 <sup>a</sup> <sub>1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3426.414	29176.66	3		20639 <sub>5/2</sub> —49815 <sub>4/2</sub> <sup>o</sup>
3427.853	29164.41	60		4178 <sub>0/2</sub> —33343 <sub>1/2</sub> <sup>o</sup>
3434.701	29106.27	200	4	15770 <sub>1/2</sub> —44876 <sub>1/2</sub> <sup>o</sup>
3435.213	29101.93	20		15770 <sub>1/2</sub> —44872 <sub>2/2</sub> <sup>o</sup>
3435.679	29097.98	40	1	15624 <sub>2/2</sub> —44722 <sub>1/2</sub> <sup>o</sup>
3436.644	29089.81	3		19791 <sub>4/2</sub> —48881 <sub>4/2</sub> <sup>o</sup>
3437.439	29083.08	150	1	4002 <sub>1/2</sub> —33085 <sub>2/2</sub> <sup>o</sup>
3438.729	29072.18	80	1	14733 <sub>4/2</sub> —43805 <sub>3/2</sub> <sup>o</sup>
3439.217	29068.05	3		17328 <sub>4/2</sub> —46396 <sub>3/2</sub> <sup>o</sup>
3439.819	29062.96	12		15624 <sub>2/2</sub> —44687 <sub>3/2</sub> <sup>o</sup>
3441.217	29051.16	3w		10516 <sub>3/2</sub> —39567 <sub>3/2</sub> <sup>o</sup>
3442.337	29041.70	10		13252 <sub>2/2</sub> —42294 <sub>2/2</sub> <sup>o</sup>
3443.472	29032.13	200 c	2	2572 <sub>4/2</sub> —31605 <sub>3/2</sub> <sup>o</sup>
3449.897	28978.07	15		19903 <sub>3/2</sub> —48881 <sub>4/2</sub> <sup>o</sup>
3451.050	28968.38	200	8	15298 <sub>3/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
3451.507	28964.55	3		13252 <sub>2/2</sub> —42217 <sub>1/2</sub> <sup>o</sup>
3453.020	28951.86	30	1	15770 <sub>1/2</sub> —44722 <sub>1/2</sub> <sup>o</sup>
3454.073	28943.03	30	1	15298 <sub>3/2</sub> —44241 <sub>2/2</sub> <sup>o</sup>
3454.623	28938.42	8		11890 <sub>0/2</sub> —40829 <sub>0/2</sub> <sup>o</sup>
3456.849	28919.79	200	5	3700 <sub>2/2</sub> —32620 <sub>3/2</sub> <sup>o</sup>
3457.243	28916.49	400	20	14733 <sub>4/2</sub> —43649 <sub>4/2</sub> <sup>o</sup>
3457.603	28913.48	40	3	15624 <sub>2/2</sub> —44537 <sub>2/2</sub> <sup>o</sup>
3465.212	28850.00	5		13252 <sub>2/2</sub> —42102 <sub>2/2</sub> <sup>o</sup>
3466.278	28841.12	5000 cw	500 cw	2572 <sub>4/2</sub> —31414 <sub>3/2</sub> <sup>o</sup>
3470.188	28808.63	10		15298 <sub>3/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>
3470.299	28807.71	5		22615 <sub>3/2</sub> —51423 <sub>3/2</sub> <sup>o</sup>
3472.165	28792.23	30	6	15298 <sub>3/2</sub> —44090 <sub>3/2</sub> <sup>o</sup>
3472.896	28786.17	15		11063 <sub>2/2</sub> —39849 <sub>3/2</sub> <sup>o</sup>
3473.726	28779.29	20		14733 <sub>4/2</sub> —43512 <sub>5/2</sub> <sup>o</sup>
3475.178	28767.26	80	2	15770 <sub>1/2</sub> —44537 <sub>2/2</sub> <sup>o</sup>
3475.592	28763.84	1000	10	3250 <sub>3/2</sub> —32014 <sub>2/2</sub> <sup>o</sup>
3477.838	28745.26	1		20384 <sub>3/2</sub> —49130 <sub>3/2</sub> <sup>o</sup>
3478.432	28740.35	10		13252 <sub>2/2</sub> —41993 <sub>3/2</sub> <sup>o</sup>
3479.452	28731.93	10		14169 <sub>1/2</sub> —42901 <sub>1/2</sub> <sup>o</sup>
3482.288	28708.53	2h		15298 <sub>3/2</sub> —44007 <sub>2/2</sub> <sup>o</sup>
3484.620	28689.32	60	1	15624 <sub>2/2</sub> —44313 <sub>1/2</sub> <sup>o</sup>
3486.226	28676.10	1000 c	30 c	3250 <sub>3/2</sub> —31927 <sub>2/2</sub> <sup>o</sup>
3490.299	28642.64	100	2	15624 <sub>2/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
3493.394	28617.26	400	5	15624 <sub>2/2</sub> —44241 <sub>2/2</sub> <sup>o</sup>
3494.168	28610.92	20	1	21204 <sub>4/2</sub> —49815 <sub>4/2</sub> <sup>o</sup>
3494.623	28607.20	500	4	15298 <sub>3/2</sub> —43905 <sub>3/2</sub> <sup>o</sup>
3500.161	28561.94	6		17146 <sub>5/2</sub> —45708 <sub>4/2</sub> <sup>o</sup>
3500.704	28557.51	1000	20	3700 <sub>2/2</sub> —32258 <sub>1/2</sub> <sup>o</sup>
3501.241	28553.13	200	2	3700 <sub>2/2</sub> —32253 <sub>1/2</sub> <sup>o</sup>
3501.507	28550.96	20	10h	16025 <sub>5/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
3502.467	28543.13	80	2	15770 <sub>1/2</sub> —44313 <sub>1/2</sub> <sup>o</sup>
3502.704	28541.20	800 c	20 c	2572 <sub>4/2</sub> —31114 <sub>4/2</sub> <sup>o</sup>
3503.336	28536.05	30	20hw	13252 <sub>2/2</sub> —41788 <sub>1/2</sub> <sup>o</sup>
3503.586	28534.02	30		14733 <sub>4/2</sub> —43267 <sub>3/2</sub> <sup>o</sup>
3503.786	28532.39	40		14733 <sub>4/2</sub> —43265 <sub>4/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3505.558	28517.97	3		11578 <sub>1/2</sub> <sup>o</sup> —40096 <sub>1/2</sub> <sup>o</sup>
3506.114	28513.44	50	1	11063 <sub>2/2</sub> <sup>o</sup> —39576 <sub>1/2</sub> <sup>o</sup>
3506.931	28506.80	10		15298 <sub>3/2</sub> <sup>o</sup> —43805 <sub>3/2</sub> <sup>o</sup>
3507.187	28504.72	100 c	1	11063 <sub>2/2</sub> <sup>o</sup> —39567 <sub>3/2</sub> <sup>o</sup>
3508.271	28495.91	100	1	19791 <sub>4/2</sub> <sup>o</sup> —48287 <sub>5/2</sub> <sup>o</sup>
3509.519	28485.78	4		15624 <sub>2/2</sub> <sup>o</sup> —44110 <sub>1/2</sub> <sup>o</sup>
3509.869	28482.94	2		15624 <sub>2/2</sub> <sup>o</sup> —44107 <sub>2/2</sub> <sup>o</sup>
3510.594	28477.06	10		13252 <sub>2/2</sub> <sup>o</sup> —41729 <sub>3/2</sub> <sup>o</sup>
3511.328	28471.11	20		15770 <sub>1/2</sub> <sup>o</sup> —44241 <sub>2/2</sub> <sup>o</sup>
3511.919	28466.31	20	1	15624 <sub>2/2</sub> <sup>o</sup> —44090 <sub>3/2</sub> <sup>o</sup>
3512.546	28461.23	5		16415 <sub>2/2</sub> <sup>o</sup> —44876 <sub>1/2</sub> <sup>o</sup>
3512.768	28459.44	6		20639 <sub>5/2</sub> <sup>o</sup> —49098 <sub>4/2</sub> <sup>o</sup>
3514.700	28443.79	2		20686 <sub>2/2</sub> <sup>o</sup> —49130 <sub>3/2</sub> <sup>o</sup>
3515.174	28439.96	12	1	19702 <sub>1/2</sub> <sup>o</sup> —48142 <sub>2/2</sub> <sup>o</sup>
3517.206	28423.53	40	1	16415 <sub>2/2</sub> <sup>o</sup> —44839 <sub>3/2</sub> <sup>o</sup>
3517.442	28421.62	10		19791 <sub>4/2</sub> <sup>o</sup> —48213 <sub>4/2</sub> <sup>o</sup>
3520.054	28400.53	30 c		4002 <sub>1/2</sub> <sup>o</sup> —32403 <sub>0/2</sub> <sup>o</sup>
3520.276	28398.74	20		11578 <sub>1/2</sub> <sup>o</sup> —39977 <sub>2/2</sub> <sup>o</sup>
3520.514	28396.82	30 c		11063 <sub>2/2</sub> <sup>o</sup> —39459 <sub>2/2</sub> <sup>o</sup>
3522.275	28382.62	30		15624 <sub>2/2</sub> <sup>o</sup> —44007 <sub>2/2</sub> <sup>o</sup>
3522.516	28380.68	15		17328 <sub>4/2</sub> <sup>o</sup> —45708 <sub>4/2</sub> <sup>o</sup>
3524.523	28364.52	20	1	14733 <sub>4/2</sub> <sup>o</sup> —43097 <sub>4/2</sub> <sup>o</sup>
3525.828	28354.02	800	15	3250 <sub>3/2</sub> <sup>o</sup> —31605 <sub>3/2</sub> <sup>o</sup>
3526.178	28351.21	300	5	15298 <sub>3/2</sub> <sup>o</sup> —43649 <sub>4/2</sub> <sup>o</sup>
3527.626	28339.57	50	2	15770 <sub>1/2</sub> <sup>o</sup> —44110 <sub>1/2</sub> <sup>o</sup>
3527.976	28336.76	30		15770 <sub>1/2</sub> <sup>o</sup> —44107 <sub>2/2</sub> <sup>o</sup>
3529.829	28321.88	100	2	19895 <sub>2/2</sub> <sup>o</sup> —48217 <sub>3/2</sub> <sup>o</sup>
3530.813	28313.99	10		3700 <sub>2/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
3531.002	28312.480	3		11578 <sub>1/2</sub> <sup>o</sup> —39891 <sub>2/2</sub> <sup>o</sup>
3531.318	28309.94	15		19903 <sub>3/2</sub> <sup>o</sup> —48213 <sub>4/2</sub> <sup>o</sup>
3531.733	28306.62	3		16415 <sub>2/2</sub> <sup>o</sup> —44722 <sub>1/2</sub> <sup>o</sup>
3534.878	28281.43	150	3	15624 <sub>2/2</sub> <sup>o</sup> —43905 <sub>3/2</sub> <sup>o</sup>
3535.506	28276.41	500	12	13252 <sub>2/2</sub> <sup>o</sup> —41529 <sub>3/2</sub> <sup>o</sup>
3538.119	28255.53	300		4002 <sub>1/2</sub> <sup>o</sup> —32258 <sub>1/2</sub> <sup>o</sup>
3538.678	28251.06	800	3	4002 <sub>1/2</sub> <sup>o</sup> —32253 <sub>1/2</sub> <sup>o</sup>
3539.148	28247.31	20		19895 <sub>2/2</sub> <sup>o</sup> —48142 <sub>2/2</sub> <sup>o</sup>
3539.759	28242.44	12		20639 <sub>5/2</sub> <sup>o</sup> —48881 <sub>4/2</sub> <sup>o</sup>
3540.174	28239.12	1		19903 <sub>3/2</sub> <sup>o</sup> —48142 <sub>2/2</sub> <sup>o</sup>
3541.772	28226.38	2000 c	20 c	3700 <sub>2/2</sub> <sup>o</sup> —31927 <sub>2/2</sub> <sup>o</sup>
3544.382	28205.60	20	1	11890 <sub>0/2</sub> <sup>o</sup> —40096 <sub>1/2</sub> <sup>o</sup>
3549.725	28163.15	6000 c	60 c	3250 <sub>3/2</sub> <sup>o</sup> —31414 <sub>3/2</sub> <sup>o</sup>
3550.645	28155.85	4000 c	40 c	3250 <sub>3/2</sub> <sup>o</sup> —31406 <sub>2/2</sub> <sup>o</sup>
3551.206	28151.40	30		0 <sub>2/2</sub> <sup>o</sup> —28151 <sub>1/2</sub> <sup>o</sup>
3553.539	28132.92	60	1	16133 <sub>4/2</sub> <sup>o</sup> —44266 <sub>3/2</sub> <sup>o</sup>
3554.580	28124.68	30		14169 <sub>1/2</sub> <sup>o</sup> —42294 <sub>2/2</sub> <sup>o</sup>
3554.919	28122.00	2		16415 <sub>2/2</sub> <sup>o</sup> —44537 <sub>2/2</sub> <sup>o</sup>
3556.056	28113.01	40	2h	16025 <sub>5/2</sub> <sup>o</sup> —44138 <sub>5/2</sub> <sup>o</sup>
3558.209	28096.00	2		21719 <sub>5/2</sub> <sup>o</sup> —49815 <sub>4/2</sub> <sup>o</sup>
3559.754	28083.80	300	5	14733 <sub>4/2</sub> <sup>o</sup> —42817 <sub>4/2</sub> <sup>o</sup>
3560.319	28079.35	800	15	4178 <sub>0/2</sub> <sup>o</sup> —32258 <sub>1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3560.876	28074.95	50		4178 <sub>0 1/2</sub> —32253 <sub>1 1/2</sub> <sup>o</sup>
3561.192	28072.46	50	1	19791 <sub>4 1/2</sub> —47864 <sub>3 1/2</sub> <sup>o</sup>
3562.303	28063.71	4		21752 <sub>3 1/2</sub> —49815 <sub>4 1/2</sub> <sup>o</sup>
3564.359	28047.52	5		14169 <sub>1 1/2</sub> —42217 <sub>1 1/2</sub> <sup>o</sup>
3565.217	28040.77	100	1	14733 <sub>4 1/2</sub> —42773 <sub>5 1/2</sub> <sup>o</sup>
3565.490	28038.62	80	1	14733 <sub>4 1/2</sub> —42771 <sub>3 1/2</sub> <sup>o</sup>
3566.883	28027.67	3		19791 <sub>4 1/2</sub> —47819 <sub>4 1/2</sub> <sup>o</sup>
3568.853	28012.20	800	5	4002 <sub>1 1/2</sub> —32014 <sub>2 1/2</sub> <sup>o</sup>
3570.654	27998.08	100	1	11578 <sub>1 1/2</sub> —39576 <sub>1 1/2</sub> <sup>o</sup>
3570.654	27998.08	100	1	13252 <sub>2 1/2</sub> —41250 <sub>1 1/2</sub> <sup>o</sup>
3573.083	27979.04	50		16287 <sub>3 1/2</sub> —44266 <sub>3 1/2</sub> <sup>o</sup>
3574.410	27968.66	25		15298 <sub>3 1/2</sub> —43267 <sub>3 1/2</sub> <sup>o</sup>
3574.610	27967.09	80	1	15298 <sub>3 1/2</sub> —43265 <sub>4 1/2</sub> <sup>o</sup>
3575.420	27960.76	100	1	19903 <sub>3 1/2</sub> —47864 <sub>3 1/2</sub> <sup>o</sup>
3575.964	27956.50	20		16133 <sub>4 1/2</sub> —44090 <sub>3 1/2</sub> <sup>o</sup>
3576.324	27953.69	50		16287 <sub>3 1/2</sub> —44241 <sub>2 1/2</sub> <sup>o</sup>
3577.228	27946.62	6		16025 <sub>5 1/2</sub> —43971 <sub>4 1/2</sub> <sup>o</sup>
3577.986	27940.70	15		0 <sub>2 1/2</sub> —27940 <sub>2 1/2</sub> <sup>o</sup>
3578.969	27933.03	60		14169 <sub>1 1/2</sub> —42102 <sub>2 1/2</sub> <sup>o</sup>
3580.059	27924.52	1000	10 c	4002 <sub>1 1/2</sub> —31927 <sub>2 1/2</sub> <sup>o</sup>
3581.258	27915.18	1000	10 c	16428 <sub>2 1/2</sub> —44343 <sub>3 1/2</sub> <sup>o</sup>
3581.744	27911.39	10		20231 <sub>1 1/2</sub> —48142 <sub>2 1/2</sub> <sup>o</sup>
3582.075	27908.81	800	4	16428 <sub>2 1/2</sub> —44337 <sub>2 1/2</sub> <sup>o</sup>
3582.628	27904.50	2000	10	3700 <sub>2 1/2</sub> —31605 <sub>3 1/2</sub> <sup>o</sup>
3582.628	27904.50	2000	10	16428 <sub>2 1/2</sub> —44333 <sub>1 1/2</sub> <sup>o</sup>
3583.464	27897.99	12		16415 <sub>2 1/2</sub> —44313 <sub>1 1/2</sub> <sup>o</sup>
3584.005	27893.78	1		21204 <sub>4 1/2</sub> —49098 <sub>4 1/2</sub> <sup>o</sup>
3585.684	27880.72	30	1	14733 <sub>4 1/2</sub> —42613 <sub>4 1/2</sub> <sup>o</sup>
3587.386	27867.49	1		14733 <sub>4 1/2</sub> —42600 <sub>5 1/2</sub> <sup>o</sup>
3587.942	27863.17	4000	40	3250 <sub>3 1/2</sub> —31114 <sub>4 1/2</sub> <sup>o</sup>
3589.471	27851.31	15		16415 <sub>2 1/2</sub> —44266 <sub>3 1/2</sub> <sup>o</sup>
3591.222	27837.73	50	1	16133 <sub>4 1/2</sub> —43971 <sub>4 1/2</sub> <sup>o</sup>
3591.483	27835.70	80	4	13252 <sub>2 1/2</sub> —41088 <sub>3 1/2</sub> <sup>o</sup>
3591.942	27832.15	8 cw		16025 <sub>5 1/2</sub> —43857 <sub>6 1/2</sub> <sup>o</sup>
3593.580	27819.46	10		16287 <sub>3 1/2</sub> —44107 <sub>2 1/2</sub> <sup>o</sup>
3594.573	27811.78	300	4	14733 <sub>4 1/2</sub> —42545 <sub>4 1/2</sub> <sup>o</sup>
3594.908	27809.18	50 cw		2572 <sub>4 1/2</sub> —30382 <sub>3 1/2</sub> <sup>o</sup>
3595.661	27803.36	1000 cw	10 cw	3700 <sub>2 1/2</sub> —31503 <sub>1 1/2</sub> <sup>o</sup>
3596.181	27799.34	4		15298 <sub>3 1/2</sub> —43097 <sub>4 1/2</sub> <sup>o</sup>
3597.401	27789.91	12		14733 <sub>4 1/2</sub> —42523 <sub>3 1/2</sub> <sup>o</sup>
3598.830	27778.88	30		15298 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub> <sup>o</sup>
3599.750	27771.78	50	1	16133 <sub>4 1/2</sub> —43905 <sub>3 1/2</sub> <sup>o</sup>
3602.191	27752.96	20	1	14169 <sub>1 1/2</sub> —41922 <sub>2 1/2</sub> <sup>o</sup>
3602.639	27749.51	1		19702 <sub>1 1/2</sub> —47452 <sub>2 1/2</sub> <sup>o</sup>
3605.938	27724.12	15		10516 <sub>3 1/2</sub> —38240 <sub>3 1/2</sub> <sup>o</sup>
3607.321	27713.49	1000 c	30 c	3700 <sub>2 1/2</sub> —31414 <sub>3 1/2</sub> <sup>o</sup>
3607.625	27711.16	200	5	14733 <sub>4 1/2</sub> —42444 <sub>5 1/2</sub> <sup>o</sup>
3608.271	27706.20	2000 c	80 c	3700 <sub>2 1/2</sub> —31406 <sub>2 1/2</sub> <sup>o</sup>
3609.045	27700.26	60		10516 <sub>3 1/2</sub> —38216 <sub>2 1/2</sub> <sup>o</sup>
3609.843	27694.13	6		20523 <sub>2 1/2</sub> —48217 <sub>3 1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3611.156	27684.06	50		16287 <sub>3/2</sub> —43971 <sub>4/2</sub> <sup>o</sup>
3612.108	27676.77	60		21204 <sub>4/2</sub> —48881 <sub>4/2</sub> <sup>o</sup>
3612.346	27674.94	3		16415 <sub>2/2</sub> —44090 <sub>3/2</sub> <sup>o</sup>
3612.833	27671.21	4	3 <i>h</i>	16133 <sub>4/2</sub> —43805 <sub>3/2</sub> <sup>o</sup>
3614.282	27660.12	15		0 <sub>2/2</sub> —27660 <sub>3/2</sub> <sup>o</sup>
3615.814	27648.40	50	1	20639 <sub>5/2</sub> —48287 <sub>3/2</sub> <sup>o</sup>
3616.528	27642.94	30		15624 <sub>2/2</sub> —43267 <sub>3/2</sub> <sup>o</sup>
3618.943	27624.50	200	3	16025 <sub>5/2</sub> —43649 <sub>4/2</sub> <sup>o</sup>
3619.664	27618.99	20		14169 <sub>1/2</sub> —41788 <sub>1/2</sub> <sup>o</sup>
3622.453	27597.73	1		19791 <sub>4/2</sub> —47389 <sub>3/2</sub> <sup>o</sup>
3623.508	27589.69	5		17282 <sub>3/2</sub> —44872 <sub>2/2</sub> <sup>o</sup>
3625.555	27574.12	150	3	20639 <sub>5/2</sub> —48213 <sub>4/2</sub> <sup>o</sup>
3626.294	27568.50	10		13252 <sub>2/2</sub> —40821 <sub>2/2</sub> <sup>o</sup>
3627.364	27560.37	1000 <i>c</i>	10 <i>c</i>	2572 <sub>4/2</sub> —30133 <sub>4/2</sub> <sup>o</sup>
3627.858	27556.61	100	2	17282 <sub>3/2</sub> —44839 <sub>3/2</sub> <sup>o</sup>
3628.476	27551.92	2		19791 <sub>4/2</sub> —47343 <sub>4/2</sub> <sup>o</sup>
3628.901	27548.69	30	1	19903 <sub>3/2</sub> —47452 <sub>2/2</sub> <sup>o</sup>
3630.388	27537.41	200	2	14679 <sub>0/2</sub> —42217 <sub>1/2</sub> <sup>o</sup>
3631.227	27531.05	2		20686 <sub>2/2</sub> —48217 <sub>3/2</sub> <sup>o</sup>
3633.244	27515.76	150	2	16133 <sub>4/2</sub> —43649 <sub>4/2</sub> <sup>o</sup>
3635.146	27501.37	3000 <i>c</i>	50 <i>c</i>	4002 <sub>1/2</sub> —31503 <sub>1/2</sub> <sup>o</sup>
3636.070	27494.38	10000 <i>c</i>	500 <i>c</i>	2572 <sub>4/2</sub> —30067 <sub>5/2</sub> <sup>o</sup>
3637.447	27483.97	8		14733 <sub>4/2</sub> —42217 <sub>4/2</sub> <sup>o</sup>
3638.012	27479.70	1		20384 <sub>3/2</sub> —47864 <sub>3/2</sub> <sup>o</sup>
3638.220	27478.13	1000	15	16874 <sub>3/2</sub> —44352 <sub>4/2</sub> <sup>o</sup>
3638.848	27473.39	200	4	15298 <sub>3/2</sub> —42771 <sub>3/2</sub> <sup>o</sup>
3639.379	27469.38	900	15	16874 <sub>3/2</sub> —44343 <sub>3/2</sub> <sup>o</sup>
3640.226	27462.99	400	10	16874 <sub>3/2</sub> —44337 <sub>2/2</sub> <sup>o</sup>
3641.093	27456.45	6	1	20686 <sub>2/2</sub> —48142 <sub>2/2</sub> <sup>o</sup>
3641.183	27455.77	15	1	14169 <sub>1/2</sub> —41625 <sub>1/2</sub> <sup>o</sup>
3641.534	27453.13	30	1	15624 <sub>2/2</sub> —43077 <sub>3/2</sub> <sup>o</sup>
3643.376	27439.25	10		20231 <sub>1/2</sub> —47670 <sub>0/2</sub> <sup>o</sup>
3643.950	27434.92	8		20384 <sub>3/2</sub> —47819 <sub>4/2</sub> <sup>o</sup>
3644.134	27433.54	50	2	20783 <sub>3/2</sub> —48217 <sub>3/2</sub> <sup>o</sup>
3644.427	27431.33	3		21450 <sub>4/2</sub> —48881 <sub>4/2</sub> <sup>o</sup>
3648.040	27404.17	1000 <i>c</i>	50 <i>c</i>	4002 <sub>1/2</sub> —31406 <sub>2/2</sub> <sup>o</sup>
3648.860	27398.01	10		15298 <sub>3/2</sub> —42696 <sub>2/2</sub> <sup>o</sup>
3650.344	27386.87	60	2	15624 <sub>2/2</sub> —43011 <sub>3/2</sub> <sup>o</sup>
3651.467	27378.45	600	20	16133 <sub>4/2</sub> —43512 <sub>5/2</sub> <sup>o</sup>
3654.054	27359.07	10	1	17328 <sub>4/2</sub> —44687 <sub>3/2</sub> <sup>o</sup>
3656.458	27341.08	1		20523 <sub>2/2</sub> —47864 <sub>3/2</sub> <sup>o</sup>
3658.588	27325.16	1000 <i>c</i>	60 <i>c</i>	4178 <sub>0/2</sub> —31503 <sub>1/2</sub> <sup>o</sup>
3659.882	27315.50	3		15298 <sub>3/2</sub> —42613 <sub>4/2</sub> <sup>o</sup>
3661.452	27303.79	400 <i>c</i>	30 <i>c</i>	16553 <sub>6/2</sub> —43857 <sub>6/2</sub> <sup>o</sup>
3662.032	27299.46	6		14733 <sub>4/2</sub> —42032 <sub>5/2</sub> <sup>o</sup>
3662.838	27293.46	30	1	17282 <sub>3/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
3663.091	27291.57	8		25058 <sub>3/2</sub> —52350 <sub>4/2</sub> <sup>o</sup>
3664.455	27281.41	6		15624 <sub>2/2</sub> —42905 <sub>2/2</sub> <sup>o</sup>
3664.916	27277.98	200	2	3250 <sub>3/2</sub> —30528 <sub>2/2</sub> <sup>o</sup>
3667.349	27259.88	10		14733 <sub>4/2</sub> —41993 <sub>3/2</sub> <sup>o</sup>



TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3667.510	27258.69	30	1	16287 <sub>3/2</sub> —43546 <sub>2/2</sub> <sup>o</sup>
3667.794	27256.58	10		11063 <sub>2/2</sub> —38319 <sub>1/2</sub> <sup>o</sup>
3667.991	27255.11	10		17282 <sub>3/2</sub> —44537 <sub>2/2</sub> <sup>o</sup>
3668.940	27248.06	20	1	17328 <sub>4/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
3669.152	27246.49	40	2	15298 <sub>3/2</sub> —42545 <sub>4/2</sub> <sup>o</sup>
3669.918	27240.80	40	1h	15770 <sub>1/2</sub> —43011 <sub>2/2</sub> <sup>o</sup>
3672.087	27224.71	8		15298 <sub>3/2</sub> —42523 <sub>3/2</sub> <sup>o</sup>
3675.003	27203.11	3		19827 <sub>0/2</sub> —47030 <sub>1/2</sub> <sup>o</sup>
3675.003	27203.11	3		21926 <sub>2/2</sub> —49130 <sub>3/2</sub> <sup>o</sup>
3675.429	27199.96	30		22615 <sub>3/2</sub> —49815 <sub>4/2</sub> <sup>o</sup>
3678.089	27180.29	80	2	20639 <sub>5/2</sub> —47819 <sub>4/2</sub> <sup>o</sup>
3678.388	27178.08	70	2	20686 <sub>2/2</sub> —47864 <sub>3/2</sub> <sup>o</sup>
3679.146	27172.48	1000	30	16025 <sub>5/2</sub> —43197 <sub>6/2</sub> <sup>o</sup>
3680.318	27163.83	300	6	14733 <sub>4/2</sub> —41897 <sub>4/2</sub> <sup>o</sup>
3680.575	27161.93	50		21719 <sub>5/2</sub> —48881 <sub>4/2</sub> <sup>o</sup>
3681.683	27153.76	40		11063 <sub>2/2</sub> —38216 <sub>2/2</sub> <sup>o</sup>
3682.592	27147.05	100	2	16025 <sub>5/2</sub> —43172 <sub>5/2</sub> <sup>o</sup>
3684.744	27131.20	5000	100	3250 <sub>3/2</sub> —30382 <sub>3/2</sub> <sup>o</sup>
3687.772	27108.92	20	1	14679 <sub>0/2</sub> —41788 <sub>1/2</sub> <sup>o</sup>
3691.324	27082.84	1		21204 <sub>4/2</sub> —48287 <sub>5/2</sub> <sup>o</sup>
3692.759	27072.31	300	4	15624 <sub>2/2</sub> —42696 <sub>2/2</sub> <sup>o</sup>
3693.400	27067.62	8		20384 <sub>3/2</sub> —47452 <sub>2/2</sub> <sup>o</sup>
3695.734	27050.52	1		20231 <sub>1/2</sub> —47281 <sub>2/2</sub> <sup>o</sup>
3696.297	27046.40	150	3	13252 <sub>2/2</sub> —40299 <sub>2/2</sub> <sup>o</sup>
3697.415	27038.22	100	1	16133 <sub>4/2</sub> —43172 <sub>5/2</sub> <sup>o</sup>
3697.736	27035.88	30	1	20783 <sub>3/2</sub> —47819 <sub>4/2</sub> <sup>o</sup>
3701.478	27008.54	5	1	21204 <sub>4/2</sub> —48213 <sub>4/2</sub> <sup>o</sup>
3701.966	27004.98	1		20384 <sub>3/2</sub> —47389 <sub>3/2</sub> <sup>o</sup>
3703.830	26991.39	800	20	17146 <sub>5/2</sub> —44138 <sub>5/2</sub> <sup>o</sup>
3704.797	26984.35	300	5	17282 <sub>3/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
3705.481	26979.37	100	2	16287 <sub>3/2</sub> —43267 <sub>3/2</sub> <sup>o</sup>
3705.712	26977.69	80	1	16287 <sub>3/2</sub> —43265 <sub>4/2</sub> <sup>o</sup>
3706.705	26970.46	200	4	14733 <sub>4/2</sub> —41703 <sub>4/2</sub> <sup>o</sup>
3707.627	26963.75	200	5	16133 <sub>4/2</sub> —43097 <sub>4/2</sub> <sup>o</sup>
3708.261	26959.14	200	3	16553 <sub>6/2</sub> —43512 <sub>5/2</sub> <sup>o</sup>
3709.226	26952.13	2		15298 <sub>3/2</sub> —42250 <sub>2/2</sub> <sup>o</sup>
3709.527	26949.94	15		22180 <sub>4/2</sub> —49130 <sub>3/2</sub> <sup>o</sup>
3709.831	26947.73	80	1	15298 <sub>3/2</sub> —42246 <sub>3/2</sub> <sup>o</sup>
3710.126	26945.59	90	2	14679 <sub>0/2</sub> —41625 <sub>1/2</sub> <sup>o</sup>
3710.428	26943.40	4		16133 <sub>4/2</sub> —43077 <sub>3/2</sub> <sup>o</sup>
3711.048	26938.90	2		17328 <sub>4/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
3711.388	26936.43	80	1	21206 <sub>2/2</sub> —48142 <sub>2/2</sub> <sup>o</sup>
3712.256	26930.13	1000	10	3700 <sub>2/2</sub> —30630 <sub>1/2</sub> <sup>o</sup>
3712.819	26926.05	300	3	15770 <sub>1/2</sub> —42696 <sub>2/2</sub> <sup>o</sup>
3713.838	26918.66	25		15298 <sub>3/2</sub> —42217 <sub>4/2</sub> <sup>o</sup>
3715.944	26903.41	500	5	14169 <sub>1/2</sub> —41073 <sub>1/2</sub> <sup>o</sup>
3716.809	26897.14	20	2	20384 <sub>3/2</sub> —47281 <sub>2/2</sub> <sup>o</sup>
3718.861	26882.30	10000	300	3250 <sub>3/2</sub> —30133 <sub>4/2</sub> <sup>o</sup>
3721.056	26866.45	3		20523 <sub>2/2</sub> —47389 <sub>3/2</sub> <sup>o</sup>
3723.132	26851.47	40		16415 <sub>2/2</sub> —43267 <sub>3/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3723.674	26847.56	1500	15	14733 <sub>4 1/2</sub> —41580 <sub>5 1/2</sub>
3724.176	26843.94	10		13252 <sub>2 1/2</sub> —40096 <sub>1 1/2</sub>
3724.395	26842.36	2000	20	17522 <sub>4 1/2</sub> —44365 <sub>5 1/2</sub>
3725.082	26837.41	20		21450 <sub>4 1/2</sub> —48287 <sub>5 1/2</sub>
3726.152	26829.70	100	2	17522 <sub>4 1/2</sub> —44352 <sub>4 1/2</sub>
3726.351	26828.27	5000	40	3700 <sub>2 1/2</sub> —30528 <sub>2 1/2</sub>
3727.364	26820.98	200		17522 <sub>4 1/2</sub> —44343 <sub>3 1/2</sub>
3728.886	26810.03	30		16287 <sub>3 1/2</sub> —43097 <sub>4 1/2</sub>
3728.886	26810.03	30		17328 <sub>4 1/2</sub> —44138 <sub>5 1/2</sub>
3729.177	26807.94	400 c	5 c	17282 <sub>3 1/2</sub> —44090 <sub>3 1/2</sub>
3730.358	26799.45	10		20231 <sub>1 1/2</sub> —47030 <sub>1 1/2</sub>
3730.836	26796.02	60	1	14733 <sub>4 1/2</sub> —41529 <sub>3 1/2</sub>
3731.412	26791.88	8		16025 <sub>5 1/2</sub> —42817 <sub>4 1/2</sub>
3731.735	26789.56	500	3	16287 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub>
3735.501	26762.56	30		17328 <sub>4 1/2</sub> —44090 <sub>3 1/2</sub>
3735.753	26760.75	4		19895 <sub>2 1/2</sub> —46656 <sub>3 1/2</sub>
3737.420	26748.82	300	2	16025 <sub>5 1/2</sub> —42773 <sub>5 1/2</sub>
3738.501	26741.08	20		11578 <sub>1 1/2</sub> —38319 <sub>1 1/2</sub>
3740.988	26723.30	2		16287 <sub>3 1/2</sub> —43011 <sub>2 1/2</sub>
3742.789	26710.45	150	3	17146 <sub>5 1/2</sub> —43857 <sub>6 1/2</sub>
3743.508	26705.32	1		19903 <sub>3 1/2</sub> —46608 <sub>3 1/2</sub>
3743.610	26704.59	2		20639 <sub>5 1/2</sub> —47343 <sub>4 1/2</sub>
3744.026	26701.62	150	2	22180 <sub>4 1/2</sub> —48881 <sub>4 1/2</sub>
3745.012	26694.59	400	5	15298 <sub>3 1/2</sub> —41993 <sub>3 1/2</sub>
3746.148	26686.50	1000	10	4002 <sub>1 1/2</sub> —30689 <sub>0 1/2</sub>
3746.640	26682.99	100	2	16133 <sub>4 1/2</sub> —42817 <sub>4 1/2</sub>
3746.845	26681.53	5000	150	3700 <sub>2 1/2</sub> —30382 <sub>3 1/2</sub>
3749.634	26661.69	10		16415 <sub>2 1/2</sub> —43077 <sub>3 1/2</sub>
3749.928	26659.60	60	4	14169 <sub>1 1/2</sub> —40829 <sub>0 1/2</sub>
3750.566	26655.06	6		20639 <sub>5 1/2</sub> —47294 <sub>5 1/2</sub>
3751.056	26651.58	6		14169 <sub>1 1/2</sub> —40821 <sub>2 1/2</sub>
3752.134	26643.92	1000	10	17328 <sub>4 1/2</sub> —43971 <sub>4 1/2</sub>
3752.944	26638.17	20		11578 <sub>1 1/2</sub> —38216 <sub>2 1/2</sub>
3754.368	26628.07	4000	40	4002 <sub>1 1/2</sub> —30630 <sub>1 1/2</sub>
3755.221	26622.02	80	3	15624 <sub>2 1/2</sub> —42246 <sub>3 1/2</sub>
3757.722	26604.30	3		19791 <sub>4 1/2</sub> —46396 <sub>3 1/2</sub>
3758.535	26598.55	1000	10	15298 <sub>3 1/2</sub> —41897 <sub>4 1/2</sub>
3758.948	26595.63	5		20686 <sub>2 1/2</sub> —47281 <sub>2 1/2</sub>
3758.948	26595.63	5		16415 <sub>2 1/2</sub> —43011 <sub>2 1/2</sub>
3759.305	26593.10	5		15624 <sub>2 1/2</sub> —42217 <sub>1 1/2</sub>
3759.553	26591.35	20	1	13252 <sub>2 1/2</sub> —39844 <sub>1 1/2</sub>
3761.481	26577.72	8		17328 <sub>4 1/2</sub> —43905 <sub>3 1/2</sub>
3761.807	26575.41	2000	20	16025 <sub>5 1/2</sub> —42600 <sub>5 1/2</sub>
3762.880	26567.84	6		21719 <sub>5 1/2</sub> —48287 <sub>5 1/2</sub>
3763.974	26560.11	40	1	20783 <sub>3 1/2</sub> —47343 <sub>4 1/2</sub>
3765.962	26546.09	2		20686 <sub>2 1/2</sub> —47232 <sub>2 1/2</sub>
3768.365	26529.17	30		16287 <sub>3 1/2</sub> —42817 <sub>4 1/2</sub>
3768.774	26526.29	5000	100	4002 <sub>1 1/2</sub> —30528 <sub>2 1/2</sub>
3769.680	26519.91	3		16025 <sub>5 1/2</sub> —42545 <sub>4 1/2</sub>
3770.498	26514.16	15		22615 <sub>3 1/2</sub> —49130 <sub>3 1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3771.031	26510.41	3000	50	4178 <sub>0 1/2</sub> —30689 <sub>0 1/2</sub>
3771.467	26507.35	4		20523 <sub>2 1/2</sub> —47030 <sub>1 1/2</sub>
3772.088	26502.98	60	2	17146 <sub>5 1/2</sub> —43649 <sub>4 1/2</sub>
3772.388	26500.88	40	2	19895 <sub>2 1/2</sub> —46396 <sub>3 1/2</sub>
3772.782	26498.11	20	1	20783 <sub>3 1/2</sub> —47281 <sub>2 1/2</sub>
3773.413	26493.68	50	4	21719 <sub>5 1/2</sub> —48213 <sub>4 1/2</sub>
3773.930	26490.05	1		16415 <sub>2 1/2</sub> —42905 <sub>2 1/2</sub>
3774.783	26484.06	15		16287 <sub>3 1/2</sub> —42771 <sub>3 1/2</sub>
3774.970	26482.75	10		22615 <sub>3 1/2</sub> —49098 <sub>4 1/2</sub>
3775.355	26480.05	50 <sup>c</sup>	1	16133 <sub>4 1/2</sub> —42613 <sub>4 1/2</sub>
3775.560	26478.61	15		15624 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub>
3777.274	26466.60	500	10	16133 <sub>4 1/2</sub> —42600 <sub>5 1/2</sub>
3779.373	26451.90	2000	40	4178 <sub>0 1/2</sub> —30630 <sub>1 1/2</sub>
3779.693	26449.66	40	1	16025 <sub>5 1/2</sub> —42474 <sub>6 1/2</sub>
3782.299	26431.43	15		15298 <sub>3 1/2</sub> —41729 <sub>3 1/2</sub>
3784.057	26419.16	500	6	16025 <sub>5 1/2</sub> —42444 <sub>5 1/2</sub>
3784.802	26413.96	1		21450 <sub>4 1/2</sub> —47864 <sub>3 1/2</sub>
3785.222	26411.02	20	1	16133 <sub>4 1/2</sub> —42545 <sub>4 1/2</sub>
3785.560	26408.67	6		16287 <sub>3 1/2</sub> —42696 <sub>2 1/2</sub>
3786.064	26405.15	200	3	15298 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub>
3786.494	26402.15	10		19702 <sub>1 1/2</sub> —46104 <sub>2 1/2</sub>
3787.772	26393.24	1		14679 <sub>0 1/2</sub> —41073 <sub>1 1/2</sub>
3788.154	26390.58	2		21752 <sub>3 1/2</sub> —48142 <sub>2 1/2</sub>
3788.370	26389.08	1		16133 <sub>4 1/2</sub> —42523 <sub>3 1/2</sub>
3791.282	26368.81	500	8	15624 <sub>2 1/2</sub> —41993 <sub>3 1/2</sub>
3791.524	26367.13	3		17282 <sub>3 1/2</sub> —43649 <sub>4 1/2</sub>
3791.734	26365.67	300	7	17146 <sub>5 1/2</sub> —43512 <sub>5 1/2</sub>
3792.774	26358.44	1		23455 <sub>2 1/2</sub> —49813 <sub>2 1/2</sub>
3793.087	26356.26	3		16415 <sub>2 1/2</sub> —42771 <sub>3 1/2</sub>
3793.207	26355.43	1		14733 <sub>4 1/2</sub> —41088 <sub>3 1/2</sub>
3794.800	26344.36	60	1	20686 <sub>2 1/2</sub> —47030 <sub>1 1/2</sub>
3796.522	26332.42	12		15770 <sub>1 1/2</sub> —42102 <sub>2 1/2</sub>
3797.435	26326.09	200	5	16287 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub>
3797.767	26323.78	1000	10	1+252 <sub>2 1/2</sub> —39576 <sub>1 1/2</sub>
3798.055	26321.79	40	1	17328 <sub>4 1/2</sub> —43649 <sub>4 1/2</sub>
3799.692	26310.45	80	2	16133 <sub>4 1/2</sub> —42444 <sub>5 1/2</sub>
3803.976	26280.82	40	1	16415 <sub>2 1/2</sub> —42696 <sub>2 1/2</sub>
3804.534	26276.96	2		19791 <sub>4 1/2</sub> —46068 <sub>4 1/2</sub>
3806.144	26265.85	15		22615 <sub>3 1/2</sub> —48881 <sub>4 1/2</sub>
3806.424	26263.92	5		17282 <sub>3 1/2</sub> —43546 <sub>2 1/2</sub>
3807.381	26257.32	10		16287 <sub>3 1/2</sub> —42545 <sub>4 1/2</sub>
3810.568	26235.36	30		16287 <sub>3 1/2</sub> —42523 <sub>3 1/2</sub>
3811.253	26230.64	80	2	15298 <sub>3 1/2</sub> —41529 <sub>3 1/2</sub>
3814.339	26209.42	6	2 <sup>h</sup>	19895 <sub>2 1/2</sub> —46104 <sub>2 1/2</sub>
3814.667	26207.17	200	3	13252 <sub>2 1/2</sub> —39459 <sub>2 1/2</sub>
3815.509	26201.38	80	1	19903 <sub>3 1/2</sub> —46104 <sub>2 1/2</sub>
3816.888	26191.92	300	4	16025 <sub>5 1/2</sub> —42217 <sub>4 1/2</sub>
3817.967	26184.51	150	3	17328 <sub>4 1/2</sub> —43512 <sub>5 1/2</sub>
3818.119	26183.47	100	2	21206 <sub>2 1/2</sub> —47389 <sub>3 1/2</sub>
3820.761	26165.37	50	2	19903 <sub>3 1/2</sub> —46068 <sub>4 1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3822.672	26152.29	80		15770 <sub>1/2</sub> —41922 <sub>2/2</sub>
3823.066	26149.59	1		14679 <sub>0/2</sub> —40829 <sub>0/2</sub>
3824.467	26140.01	300	4	15624 <sub>2/2</sub> —41764 <sub>2/2</sub>
3825.531	26132.74	5		20523 <sub>2/2</sub> —46656 <sub>3/2</sub>
3826.013	26129.45	20		14169 <sub>1/2</sub> —40299 <sub>2/2</sub>
3827.593	26118.66	60	1	17146 <sub>5/2</sub> —43265 <sub>4/2</sub>
3828.537	26112.22	500	4	16133 <sub>4/2</sub> —42246 <sub>3/2</sub>
3828.750	26110.77	3		23455 <sub>2/2</sub> —49565 <sub>2/2</sub>
3829.220	26107.57	150		16415 <sub>2/2</sub> —42523 <sub>3/2</sub>
3830.352	26099.85	200	3	21719 <sub>5/2</sub> —47819 <sub>4/2</sub>
3831.883	26089.42	20		21204 <sub>4/2</sub> —47294 <sub>5/2</sub>
3832.448	26085.58	200	1	20523 <sub>2/2</sub> —46608 <sub>3/2</sub>
3832.817	26083.07	600	5	16133 <sub>4/2</sub> —42217 <sub>4/2</sub>
3837.559	26050.84	1500	15	17146 <sub>5/2</sub> —43197 <sub>6/2</sub>
3839.577	26037.15	1		22180 <sub>4/2</sub> —48217 <sub>3/2</sub>
3840.137	26033.35	60		22180 <sub>4/2</sub> —48213 <sub>4/2</sub>
3841.307	26025.42	800	8	17146 <sub>5/2</sub> —43172 <sub>5/2</sub>
3842.342	26018.41	80		15770 <sub>1/2</sub> —41788 <sub>4/2</sub>
3843.968	26007.40	100	2	16025 <sub>5/2</sub> —42032 <sub>5/2</sub>
3844.061	26006.77	20		16287 <sub>3/2</sub> —42294 <sub>2/2</sub>
3844.347	26004.84	60	1	21447 <sub>1/2</sub> —47452 <sub>2/2</sub>
3845.974	25993.84	800	8	15770 <sub>1/2</sub> —41764 <sub>5/2</sub>
3847.351	25984.54	100	1	17282 <sub>3/2</sub> —43267 <sub>3/2</sub>
3847.596	25982.88	500	3	17282 <sub>3/2</sub> —43265 <sub>4/2</sub>
3849.519	25969.90	1		20686 <sub>2/2</sub> —46656 <sub>3/2</sub>
3850.553	25962.93	5		16287 <sub>3/2</sub> —42250 <sub>2/2</sub>
3851.222	25958.42	300	3	16287 <sub>3/2</sub> —42246 <sub>3/2</sub>
3852.328	25950.97	80	1	17146 <sub>5/2</sub> —43097 <sub>4/2</sub>
3853.323	25944.26	2		21920 <sub>2/2</sub> —47864 <sub>3/2</sub>
3854.074	25939.21	8		17328 <sub>4/2</sub> —43267 <sub>3/2</sub>
3854.326	25937.51	50		17328 <sub>4/2</sub> —43265 <sub>4/2</sub>
3855.555	25929.25	20		16287 <sub>3/2</sub> —42217 <sub>4/2</sub>
3855.914	25926.83	1		14169 <sub>1/2</sub> —40096 <sub>1/2</sub>
3856.543	25922.60	20		20686 <sub>2/2</sub> —46608 <sub>3/2</sub>
3856.734	25921.32	500 c	5 h	16553 <sub>6/2</sub> —42474 <sub>6/2</sub>
3857.388	25916.93	20		19791 <sub>4/2</sub> —45708 <sub>4/2</sub>
3860.129	25898.52	8		16133 <sub>4/2</sub> —42032 <sub>5/2</sub>
3861.259	25890.94	25 c		16553 <sub>6/2</sub> —42444 <sub>5/2</sub>
3863.068	25878.82	200	3	16415 <sub>2/2</sub> —42294 <sub>2/2</sub>
3863.830	25873.72	100	1	20231 <sub>1/2</sub> —46104 <sub>2/2</sub>
3864.106	25871.87	400	4	16025 <sub>5/2</sub> —41897 <sub>4/2</sub>
3866.012	25859.11	30		16133 <sub>4/2</sub> —41993 <sub>3/2</sub>
3866.608	25855.13	5		15770 <sub>1/2</sub> —41625 <sub>4/2</sub>
3868.240	25844.22	1000	8	17328 <sub>4/2</sub> —43172 <sub>5/2</sub>
3870.292	25830.52	10		16415 <sub>2/2</sub> —42246 <sub>3/2</sub>
3871.055	25825.43	12		25598 <sub>2/2</sub> —51423 <sub>3/2</sub>
3871.223	25824.31	12		21206 <sub>2/2</sub> —47030 <sub>1/2</sub>
3874.609	25801.74	12		16415 <sub>2/2</sub> —42217 <sub>4/2</sub>
3875.658	25794.75	200	2	17282 <sub>3/2</sub> —43077 <sub>3/2</sub>
3876.366	25790.04	80	1	15298 <sub>3/2</sub> —41088 <sub>3/2</sub>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3877.139	25784.90	30		21447 <sub>1/2</sub> —47232 <sub>2/2</sub>
3882.497	25749.32	10		17328 <sub>4/2</sub> —43077 <sub>3/2</sub>
3885.638	25728.50	3		17282 <sub>3/2</sub> —43011 <sub>2/2</sub>
3886.896	25720.18	2		20384 <sub>3/2</sub> —46104 <sub>2/2</sub>
3888.177	25711.70	1h		23265 <sub>3/2</sub> —48977 <sub>4/2</sub>
3888.440	25709.96	80	1	20686 <sub>2/2</sub> —46396 <sub>3/2</sub>
3889.130	25705.40	150	2	16287 <sub>3/2</sub> —41993 <sub>3/2</sub>
3892.332	25684.26	100	1	20384 <sub>3/2</sub> —46068 <sub>4/2</sub>
3892.332	25684.26	100	1	22180 <sub>4/2</sub> —47864 <sub>3/2</sub>
3893.220	25678.40	200	2	16025 <sub>5/2</sub> —41703 <sub>4/2</sub>
3893.837	25674.33	4		14169 <sub>1/2</sub> —39844 <sub>1/2</sub>
3894.482	25670.08	15		14733 <sub>4/2</sub> —40403 <sub>4/2</sub>
3894.482	25670.08	15		17146 <sub>5/2</sub> —42817 <sub>4/2</sub>
3894.688	25668.72	2		24147 <sub>4/2</sub> —49815 <sub>4/2</sub>
3899.120	25639.54	100	1	22180 <sub>4/2</sub> —47819 <sub>4/2</sub>
3899.827	25634.90	600	5	16287 <sub>3/2</sub> —41922 <sub>2/2</sub>
3901.473	25624.08	5		21719 <sub>5/2</sub> —47343 <sub>4/2</sub>
3903.740	25609.20	60		16287 <sub>3/2</sub> —41897 <sub>4/2</sub>
3905.322	25598.83	8		22265 <sub>2/2</sub> —47864 <sub>3/2</sub>
3905.517	25597.55	30		22615 <sub>3/2</sub> —48213 <sub>4/2</sub>
3905.774	25595.86	100	1	16133 <sub>4/2</sub> —41729 <sub>3/2</sub>
3906.400	25591.76	20		21752 <sub>3/2</sub> —47343 <sub>4/2</sub>
3907.681	25583.37	1		21447 <sub>1/2</sub> —47030 <sub>1/2</sub>
3907.958	25581.56	30		20523 <sub>2/2</sub> —46104 <sub>2/2</sub>
3908.596	25577.39	20		16415 <sub>2/2</sub> —41993 <sub>3/2</sub>
3909.038	25574.49	8		21719 <sub>5/2</sub> —47294 <sub>5/2</sub>
3909.782	25569.63	20		16133 <sub>4/2</sub> —41703 <sub>4/2</sub>
3911.921	25555.65	3		16025 <sub>5/2</sub> —41580 <sub>5/2</sub>
3915.174	25534.41	2		17282 <sub>3/2</sub> —42817 <sub>4/2</sub>
3915.889	25529.75	10		21752 <sub>3/2</sub> —47281 <sub>2/2</sub>
3916.536	25525.53	60	1	21926 <sub>2/2</sub> —47452 <sub>2/2</sub>
3916.941	25522.89	5		15298 <sub>3/2</sub> —40821 <sub>2/2</sub>
3917.443	25519.62	10 <sub>c</sub>		23265 <sub>3/2</sub> —48784 <sub>3/2</sub>
3919.148	25508.52	50		14733 <sub>4/2</sub> —40241 <sub>5/2</sub>
3919.375	25507.04	300	3	16415 <sub>2/2</sub> —41922 <sub>2/2</sub>
3922.134	25489.10	100	1	17282 <sub>3/2</sub> —42771 <sub>3/2</sub>
3922.134	25489.10	100	1	17328 <sub>4/2</sub> —42817 <sub>4/2</sub>
3923.663	25479.17	300 <sub>c</sub>	3 <sub>c</sub>	16553 <sub>6/2</sub> —42032 <sub>5/2</sub>
3925.143	25469.56	10		21920 <sub>2/2</sub> —47389 <sub>3/2</sub>
3925.953	25464.31	20		15624 <sub>2/2</sub> —41088 <sub>3/2</sub>
3927.573	25453.80	200	2	17146 <sub>5/2</sub> —42600 <sub>5/2</sub>
3928.323	25448.95	10		15624 <sub>2/2</sub> —41073 <sub>1/2</sub>
3928.770	25446.05	30		17328 <sub>4/2</sub> —42773 <sub>5/2</sub>
3929.113	25443.83	10		17328 <sub>4/2</sub> —42771 <sub>3/2</sub>
3929.378	25442.11	40		16287 <sub>3/2</sub> —41729 <sub>3/2</sub>
3931.319	25429.55	3		20639 <sub>5/2</sub> —46068 <sub>4/2</sub>
3933.438	25415.85	150	2	16287 <sub>3/2</sub> —41703 <sub>4/2</sub>
3934.832	25406.85	30		14169 <sub>1/2</sub> —39576 <sub>1/2</sub>
3936.175	25398.18	1		17146 <sub>5/2</sub> —42545 <sub>4/2</sub>
3936.648	25395.13	70		16133 <sub>4/2</sub> —41529 <sub>3/2</sub>

TABLE 3. *Classified lines of Tc1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
3940.054	25373.18	70		16415 <sub>2 1/2</sub> —41788 <sub>1 1/2</sub> <sup>o</sup>
3942.866	25355.08	30		21926 <sub>2 1/2</sub> —47281 <sub>2 1/2</sub> <sup>o</sup>
3943.868	25348.64	120	1	16415 <sub>2 1/2</sub> —41764 <sub>2 1/2</sub> <sup>o</sup>
3946.571	25331.28	4000 <i>c</i>	20 <i>c</i>	17282 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub> <sup>o</sup>
3947.087	25327.97	2000	10	17146 <sub>5 1/2</sub> —42474 <sub>6 1/2</sub> <sup>o</sup>
3948.151	25321.14	1		20783 <sub>3 1/2</sub> —46104 <sub>2 1/2</sub> <sup>o</sup>
3949.224	25314.26	9		16415 <sub>2 1/2</sub> —41729 <sub>3 1/2</sub> <sup>o</sup>
3951.016	25302.78	7		15770 <sub>1 1/2</sub> —41073 <sub>1 1/2</sub> <sup>o</sup>
3951.831	25297.56	180		17146 <sub>5 1/2</sub> —42444 <sub>5 1/2</sub> <sup>o</sup>
3953.651	25285.92	100	1	17328 <sub>4 1/2</sub> —42613 <sub>4 1/2</sub> <sup>o</sup>
3955.734	25272.60	200	3	17328 <sub>4 1/2</sub> —42600 <sub>5 1/2</sub> <sup>o</sup>
3958.793	25253.07	15		19702 <sub>1 1/2</sub> —44955 <sub>1 1/2</sub> <sup>o</sup>
3959.090	25251.18	80 <i>c</i>	1 <i>c</i>	24564 <sub>5 1/2</sub> —49815 <sub>4 1/2</sub> <sup>o</sup>
3959.520	25248.44	150	2	22615 <sub>3 1/2</sub> —47864 <sub>3 1/2</sub> <sup>o</sup>
3960.770	25240.47	20 <i>w</i>		17282 <sub>3 1/2</sub> —42523 <sub>3 1/2</sub> <sup>o</sup>
3964.266	25218.21	30		39567 <sub>3 1/2</sub> —64785 <sub>3 1/2</sub> <sup>o</sup>
3964.467	25216.93	20		17328 <sub>4 1/2</sub> —42545 <sub>4 1/2</sub> <sup>o</sup>
3965.619	25209.61	3		22180 <sub>4 1/2</sub> —47389 <sub>3 1/2</sub> <sup>o</sup>
3967.500	25197.66	100 <i>c</i>		23265 <sub>3 1/2</sub> —48462 <sub>3 1/2</sub> <sup>o</sup>
3967.912	25195.04	2		17328 <sub>4 1/2</sub> —42523 <sub>3 1/2</sub> <sup>o</sup>
3969.207	25186.82	10		22265 <sub>2 1/2</sub> —47452 <sub>2 1/2</sub> <sup>o</sup>
3971.232	25173.98	8		19702 <sub>1 1/2</sub> —44876 <sub>1 1/2</sub> <sup>o</sup>
3971.503	25172.26	80	1	23957 <sub>3 1/2</sub> —49130 <sub>3 1/2</sub> <sup>o</sup>
3971.914	25169.65	40		19702 <sub>1 1/2</sub> —44872 <sub>2 1/2</sub> <sup>o</sup>
3972.264	25167.44	20		22503 <sub>1 1/2</sub> —47670 <sub>0 1/2</sub> <sup>o</sup>
3974.554	25152.94	30 <i>h</i>		23265 <sub>3 1/2</sub> —48418 <sub>4 1/2</sub> <sup>o</sup>
3979.095	25124.23	20		22265 <sub>2 1/2</sub> —47389 <sub>3 1/2</sub> <sup>o</sup>
3980.354	25116.28	500	3	14733 <sub>4 1/2</sub> —39849 <sub>3 1/2</sub> <sup>o</sup>
3980.354	25116.28	500	3	17328 <sub>4 1/2</sub> —42444 <sub>5 1/2</sub> <sup>o</sup>
3981.279	25110.45	6		21920 <sub>2 1/2</sub> —47030 <sub>1 1/2</sub> <sup>o</sup>
3981.688	25107.87	8		15298 <sub>3 1/2</sub> —40406 <sub>3 1/2</sub> <sup>o</sup>
3982.171	25104.83	100	1	15298 <sub>3 1/2</sub> —40403 <sub>4 1/2</sub> <sup>o</sup>
3984.967	25087.21	10000 <i>c</i>	100 <i>c</i>	2572 <sub>4 1/2</sub> —27660 <sub>3 1/2</sub> <sup>o</sup>
3987.780	25069.51	400	3	20639 <sub>5 1/2</sub> —45708 <sub>4 1/2</sub> <sup>o</sup>
3989.216	25060.49	20		19895 <sub>2 1/2</sub> —44955 <sub>1 1/2</sub> <sup>o</sup>
3989.449	25059.03	8		15770 <sub>1 1/2</sub> —40829 <sub>0 1/2</sub> <sup>o</sup>
3991.320	25047.28	20		19791 <sub>4 1/2</sub> —44839 <sub>3 1/2</sub> <sup>o</sup>
3994.038	25030.24	300	1	14733 <sub>4 1/2</sub> —39763 <sub>4 1/2</sub> <sup>o</sup>
3994.509	25027.28	2000	10	16553 <sub>6 1/2</sub> —41580 <sub>5 1/2</sub> <sup>o</sup>
3995.741	25019.57	3		19702 <sub>1 1/2</sub> —44722 <sub>1 1/2</sub> <sup>o</sup>
3996.974	25011.85	200	1	17282 <sub>3 1/2</sub> —42294 <sub>2 1/2</sub> <sup>o</sup>
3998.755	25000.71	40		15298 <sub>3 1/2</sub> —40299 <sub>2 1/2</sub> <sup>o</sup>
4001.843	24981.42	20		19895 <sub>2 1/2</sub> —44876 <sub>1 1/2</sub> <sup>o</sup>
4003.867	24968.79	4		19903 <sub>3 1/2</sub> —44872 <sub>2 1/2</sub> <sup>o</sup>
4003.976	24968.11	4		17282 <sub>3 1/2</sub> —42250 <sub>2 1/2</sub> <sup>o</sup>
4004.182	24966.83	15		22265 <sub>2 1/2</sub> —47232 <sub>2 1/2</sub> <sup>o</sup>
4004.689	24963.67	300	2	17282 <sub>3 1/2</sub> —42246 <sub>3 1/2</sub> <sup>o</sup>
4006.161	24954.49	30		16133 <sub>4 1/2</sub> —41088 <sub>3 1/2</sub> <sup>o</sup>
4006.631	24951.57	30 <i>c</i>		24147 <sub>4 1/2</sub> —49098 <sub>4 1/2</sub> <sup>o</sup>
4007.874	24943.83	40		19895 <sub>2 1/2</sub> —44839 <sub>3 1/2</sub> <sup>o</sup>



TABLE 3. Classified lines of Tc I

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4008.837	24937.84	50		15298 <sub>3/2</sub> —40236 <sub>3/2</sub>
4009.179	24935.71	15		19903 <sub>3/2</sub> —44839 <sub>3/2</sub>
4010.897	24925.03	1		20783 <sub>3/2</sub> —45708 <sub>4/2</sub>
4011.043	24924.12	10		23957 <sub>3/2</sub> —48881 <sub>4/2</sub>
4011.996	24918.20	1000	5	17328 <sub>4/2</sub> —42246 <sub>3/2</sub>
4014.293	24903.94	20		21752 <sub>3/2</sub> —46656 <sub>3/2</sub>
4015.474	24896.62	30		14679 <sub>0/2</sub> —39576 <sub>1/2</sub>
4015.760	24894.85	20		19827 <sub>0/2</sub> —44722 <sub>1/2</sub>
4015.760	24894.85	20		39891 <sub>2/2</sub> —64785 <sub>3/2</sub>
4016.683	24889.12	400	2	17328 <sub>4/2</sub> —42217 <sub>4/2</sub>
4017.223	24885.78	600	4	17146 <sub>5/2</sub> —42032 <sub>5/2</sub>
4020.755	24863.92	2000	10	21204 <sub>4/2</sub> —46068 <sub>4/2</sub>
4029.108	24812.37	80	1	16287 <sub>3/2</sub> —41100 <sub>2/2</sub>
4031.626	24796.88	20000 <i>cw</i>	300 <i>cw</i>	2572 <sub>4/2</sub> —27369 <sub>4/2</sub>
4033.677	24784.27	1		19791 <sub>4/2</sub> —44576 <sub>4/2</sub>
4034.014	24782.20	80		15624 <sub>2/2</sub> —40406 <sub>3/2</sub>
4036.787	24765.17	3		22265 <sub>2/2</sub> —47030 <sub>1/2</sub>
4039.246	24750.10	1000	8	17146 <sub>5/2</sub> —41897 <sub>4/2</sub>
4041.559	24735.93	100		21920 <sub>2/2</sub> —46656 <sub>3/2</sub>
4041.781	24734.58	200		24147 <sub>4/2</sub> —48881 <sub>4/2</sub>
4042.657	24729.22	10		21926 <sub>2/2</sub> —46656 <sub>3/2</sub>
4042.657	24729.22	10		22503 <sub>1/2</sub> —47232 <sub>2/2</sub>
4043.401	24724.67	8		20231 <sub>1/2</sub> —44955 <sub>1/2</sub>
4046.697	24704.53	80		17328 <sub>4/2</sub> —42032 <sub>5/2</sub>
4049.108	24689.82	10000 <i>c</i>	150 <i>c</i>	3250 <sub>3/2</sub> —27940 <sub>2/2</sub>
4050.888	24678.97	60	1	15298 <sub>3/2</sub> —39977 <sub>2/2</sub>
4051.569	24674.82	2		15624 <sub>2/2</sub> —40299 <sub>2/2</sub>
4051.949	24672.51	500	4	19903 <sub>3/2</sub> —44576 <sub>4/2</sub>
4053.177	24665.03	200	3	17328 <sub>4/2</sub> —41993 <sub>3/2</sub>
4054.415	24657.50	30		16415 <sub>2/2</sub> —41073 <sub>1/2</sub>
4057.283	24640.07	60	2 <i>h</i>	17282 <sub>3/2</sub> —41922 <sub>2/2</sub>
4058.232	24634.31	30	1	19903 <sub>3/2</sub> —44537 <sub>2/2</sub>
4060.853	24618.41	40	1	21450 <sub>4/2</sub> —46068 <sub>4/2</sub>
4061.516	24614.39	20		17282 <sub>3/2</sub> —41897 <sub>4/2</sub>
4062.095	24610.88	8		19702 <sub>1/2</sub> —44313 <sub>1/2</sub>
4069.023	24568.98	100	1	17328 <sub>4/2</sub> —41897 <sub>4/2</sub>
4071.059	24556.69	100	1	17146 <sub>5/2</sub> —41703 <sub>4/2</sub>
4073.802	24540.16	1		26883 <sub>2/2</sub> —51423 <sub>3/2</sub>
4074.034	24538.76	6		19702 <sub>1/2</sub> —44241 <sub>2/2</sub>
4074.857	24533.81	20		24564 <sub>5/2</sub> —49098 <sub>4/2</sub>
4081.966	24491.08	3		20231 <sub>1/2</sub> —44722 <sub>1/2</sub>
4082.800	24486.08	10		19827 <sub>0/2</sub> —44313 <sub>1/2</sub>
4083.537	24481.66	400	3	17282 <sub>3/2</sub> —41764 <sub>2/2</sub>
4084.500	24475.89	6 <i>h</i>		21920 <sub>2/2</sub> —46396 <sub>3/2</sub>
4084.500	24475.89	6 <i>h</i>		22180 <sub>4/2</sub> —46656 <sub>3/2</sub>
4084.650	24474.99	10		19791 <sub>4/2</sub> —44266 <sub>3/2</sub>
4085.085	24472.38	20		15624 <sub>2/2</sub> —40096 <sub>1/2</sub>
4086.325	24464.96	18		15298 <sub>3/2</sub> —39763 <sub>4/2</sub>
4088.707	24450.70	10000	100	3700 <sub>2/2</sub> —28151 <sub>1/2</sub>
4089.285	24447.25	60		17282 <sub>3/2</sub> —41729 <sub>3/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4092.373	24428.80	12		22180 <sub>4 1/2</sub> —46608 <sub>3 1/2</sub> <sup>o</sup>
4093.694	24420.92	200	2	17282 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub> <sup>o</sup>
4094.163	24418.12	80	1	19895 <sub>2 1/2</sub> —44313 <sub>1 1/2</sub> <sup>o</sup>
4095.668	24409.15	15000	500	3250 <sub>3 1/2</sub> —27660 <sub>3 1/2</sub> <sup>o</sup>
4098.784	24390.59	100	1	22265 <sub>2 1/2</sub> —46656 <sub>3 1/2</sub> <sup>o</sup>
4100.114	24382.68	150 <i>cw</i>		40403 <sub>4 1/2</sub> —64785 <sub>3 1/2</sub> <sup>o</sup>
4100.902	24377.99	20		16025 <sub>5 1/2</sub> —40403 <sub>4 1/2</sub> <sup>o</sup>
4101.312	24375.56	100	1	17328 <sub>4 1/2</sub> —41703 <sub>4 1/2</sub> <sup>o</sup>
4101.989	24371.54	30		19895 <sub>2 1/2</sub> —44266 <sub>3 1/2</sub> <sup>o</sup>
4103.368	24363.34	10		19903 <sub>3 1/2</sub> —44266 <sub>3 1/2</sub> <sup>o</sup>
4103.987	24359.67	3		23460 <sub>3 1/2</sub> —47819 <sub>4 1/2</sub> <sup>o</sup>
4105.089	24353.13	80		15624 <sub>2 1/2</sub> —39977 <sub>2 1/2</sub> <sup>o</sup>
4106.246	24346.27	60		19791 <sub>4 1/2</sub> —44138 <sub>5 1/2</sub> <sup>o</sup>
4106.246	24346.27	60		19895 <sub>2 1/2</sub> —44241 <sub>2 1/2</sub> <sup>o</sup>
4106.723	24343.44	80	1	22265 <sub>2 1/2</sub> —46608 <sub>3 1/2</sub> <sup>o</sup>
4107.644	24337.98	20		19903 <sub>3 1/2</sub> —44241 <sub>2 1/2</sub> <sup>o</sup>
4109.646	24326.13	40		15770 <sub>1 1/2</sub> —40096 <sub>1 1/2</sub> <sup>o</sup>
4111.199	24316.94	6		24564 <sub>5 1/2</sub> —48881 <sub>4 1/2</sub> <sup>o</sup>
4111.386	24315.83	150	1	20523 <sub>2 1/2</sub> —44839 <sub>3 1/2</sub> <sup>o</sup>
4113.341	24304.28	30		19702 <sub>1 1/2</sub> —44007 <sub>2 1/2</sub> <sup>o</sup>
4115.077	24294.02	10000	300	4002 <sub>1 1/2</sub> —28296 <sub>0 1/2</sub> <sup>o</sup>
4117.021	24282.55	4		19827 <sub>0 1/2</sub> —44110 <sub>1 1/2</sub> <sup>o</sup>
4118.740	24272.42	6		16133 <sub>4 1/2</sub> —40406 <sub>3 1/2</sub> <sup>o</sup>
4119.274	24269.27	600	5	15298 <sub>3 1/2</sub> —39567 <sub>3 1/2</sub> <sup>o</sup>
4121.576	24255.72	100		23957 <sub>3 1/2</sub> —48213 <sub>4 1/2</sub> <sup>o</sup>
4124.217	24240.18	8000	200	3700 <sub>2 1/2</sub> —27940 <sub>2 1/2</sub> <sup>o</sup>
4128.268	24216.40	1000	20	16025 <sub>5 1/2</sub> —40241 <sub>5 1/2</sub> <sup>o</sup>
4128.557	24214.70	80	1	19895 <sub>2 1/2</sub> —44110 <sub>1 1/2</sub> <sup>o</sup>
4129.862	24207.05	6		15770 <sub>1 1/2</sub> —39977 <sub>2 1/2</sub> <sup>o</sup>
4130.453	24203.59	150	2	19903 <sub>3 1/2</sub> —44107 <sub>2 1/2</sub> <sup>o</sup>
4130.877	24201.10	30		17328 <sub>4 1/2</sub> —41529 <sub>3 1/2</sub> <sup>o</sup>
4132.530	24191.42	40		20384 <sub>3 1/2</sub> —44576 <sub>4 1/2</sub> <sup>o</sup>
4133.276	24187.06	20		19903 <sub>3 1/2</sub> —44090 <sub>3 1/2</sub> <sup>o</sup>
4133.679	24184.70	2		21920 <sub>2 1/2</sub> —46104 <sub>2 1/2</sub> <sup>o</sup>
4134.490	24179.96	3		19791 <sub>4 1/2</sub> —43971 <sub>4 1/2</sub> <sup>o</sup>
4134.813	24178.07	300	3	21926 <sub>2 1/2</sub> —46104 <sub>2 1/2</sub> <sup>o</sup>
4137.234	24163.92	15		20523 <sub>2 1/2</sub> —44687 <sub>3 1/2</sub> <sup>o</sup>
4137.660	24161.43	4		15298 <sub>3 1/2</sub> —39459 <sub>2 1/2</sub> <sup>o</sup>
4139.116	24152.93	300	3	20384 <sub>3 1/2</sub> —44537 <sub>2 1/2</sub> <sup>o</sup>
4139.849	24148.66	800	8	4002 <sub>1 1/2</sub> —28151 <sub>1 1/2</sub> <sup>o</sup>
4142.917	24130.77	20		22265 <sub>2 1/2</sub> —46396 <sub>3 1/2</sub> <sup>o</sup>
4144.950	24118.94	6000	30	3250 <sub>3 1/2</sub> —27369 <sub>4 1/2</sub> <sup>o</sup>
4145.080	24118.18	3000	15	4178 <sub>0 1/2</sub> —28296 <sub>0 1/2</sub> <sup>o</sup>
4146.202	24111.65	80	1	19895 <sub>2 1/2</sub> —44007 <sub>2 1/2</sub> <sup>o</sup>
4146.882	24107.70	20		16133 <sub>4 1/2</sub> —40241 <sub>5 1/2</sub> <sup>o</sup>
4147.615	24103.44	200	2	19903 <sub>3 1/2</sub> —44007 <sub>2 1/2</sub> <sup>o</sup>
4150.200	24088.43	15		20783 <sub>3 1/2</sub> —44872 <sub>2 1/2</sub> <sup>o</sup>
4151.241	24082.39	10		20231 <sub>1 1/2</sub> —44313 <sub>1 1/2</sub> <sup>o</sup>
4153.672	24068.29	150	1	19903 <sub>3 1/2</sub> —43971 <sub>4 1/2</sub> <sup>o</sup>
4158.547	24040.08	10		22615 <sub>3 1/2</sub> —46656 <sub>3 1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4158.547	24040.08	10		25058 <sub>3/2</sub> —49098 <sub>4/2</sub> <sup>o</sup>
4159.319	24035.62	20		39891 <sub>2/2</sub> —63926 <sub>2/2</sub> <sup>o</sup>
4162.970	24014.54	1		20523 <sub>2/2</sub> —44537 <sub>2/2</sub> <sup>o</sup>
4163.702	24010.32	20		19895 <sub>2/2</sub> —43905 <sub>3/2</sub> <sup>o</sup>
4165.609	23999.32	10000	100	10516 <sub>3/2</sub> —34515 <sub>2/2</sub> <sup>o</sup>
4167.424	23988.87	500	6	21719 <sub>5/2</sub> —45708 <sub>4/2</sub> <sup>o</sup>
4170.274	23972.48	4000	40	4178 <sub>0/2</sub> —28151 <sub>1/2</sub> <sup>o</sup>
4172.532	23959.50	5000	60	3700 <sub>2/2</sub> —27660 <sub>3/2</sub> <sup>o</sup>
4174.462	23948.43	70		16287 <sub>3/2</sub> —40236 <sub>3/2</sub> <sup>o</sup>
4176.276	23938.03	1000	50	4002 <sub>1/2</sub> —27940 <sub>2/2</sub> <sup>o</sup>
4182.629	23901.67	5		19903 <sub>3/2</sub> —43805 <sub>3/2</sub> <sup>o</sup>
4185.815	23883.48	3		16415 <sub>2/2</sub> —40299 <sub>2/2</sub> <sup>o</sup>
4186.506	23879.53	800	30	11063 <sub>2/2</sub> —34942 <sub>1/2</sub> <sup>o</sup>
4189.609	23861.85	50		23957 <sub>3/2</sub> —47819 <sub>4/2</sub> <sup>o</sup>
4190.306	23857.88	2		19791 <sub>4/2</sub> —43649 <sub>4/2</sub> <sup>o</sup>
4190.477	23856.90	4		20384 <sub>3/2</sub> —44241 <sub>2/2</sub> <sup>o</sup>
4191.415	23851.57	10		20686 <sub>2/2</sub> —44537 <sub>2/2</sub> <sup>o</sup>
4193.557	23839.38	1		22265 <sub>2/2</sub> —46104 <sub>2/2</sub> <sup>o</sup>
4194.224	23835.59	3		15624 <sub>2/2</sub> —39459 <sub>2/2</sub> <sup>o</sup>
4199.466	23805.84	30	1	17282 <sub>3/2</sub> —41088 <sub>3/2</sub> <sup>o</sup>
4201.850	23792.33	20	1	20783 <sub>3/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
4211.430	23738.21	20	1	16025 <sub>5/2</sub> —39763 <sub>4/2</sub> <sup>o</sup>
4214.220	23722.50	5		20384 <sub>3/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>
4215.510	23715.24	10	1	16133 <sub>4/2</sub> —39849 <sub>3/2</sub> <sup>o</sup>
4218.609	23697.82	300	20	11578 <sub>1/2</sub> —35276 <sub>0/2</sub> <sup>o</sup>
4220.346	23688.06	50 <i>h</i>	1	16553 <sub>6/2</sub> —40241 <sub>5/2</sub> <sup>o</sup>
4221.619	23680.92	10		16415 <sub>2/2</sub> —40096 <sub>1/2</sub> <sup>o</sup>
4229.948	23634.29	6		21204 <sub>4/2</sub> —44839 <sub>3/2</sub> <sup>o</sup>
4230.207	23632.85	10	1	21206 <sub>2/2</sub> —44839 <sub>3/2</sub> <sup>o</sup>
4230.832	23629.35	150	5	16133 <sub>4/2</sub> —39763 <sub>4/2</sub> <sup>o</sup>
4231.195	23627.33	5		20686 <sub>2/2</sub> —44313 <sub>1/2</sub> <sup>o</sup>
4232.096	23622.30	40	1	20384 <sub>3/2</sub> —44007 <sub>2/2</sub> <sup>o</sup>
4238.191	23588.33	5000 <i>c</i>	100 <i>c</i>	0 <sub>2/2</sub> —23588 <sub>1/2</sub> <sup>o</sup>
4238.991	23583.87	5		20523 <sub>2/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>
4239.567	23580.67	20	1	20686 <sub>2/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
4241.996	23567.17	8		20523 <sub>2/2</sub> —44090 <sub>3/2</sub> <sup>o</sup>
4242.979	23561.71	40	1	16415 <sub>2/2</sub> —39977 <sub>2/2</sub> <sup>o</sup>
4248.953	23528.58	30	1	22180 <sub>4/2</sub> —45708 <sub>4/2</sub> <sup>o</sup>
4252.756	23507.54	2 <i>h</i>		14733 <sub>4/2</sub> —38240 <sub>3/2</sub> <sup>o</sup>
4256.134	23488.88	10		22615 <sub>3/2</sub> —46104 <sub>2/2</sub> <sup>o</sup>
4257.338	23482.24	30	1	21204 <sub>4/2</sub> —44687 <sub>3/2</sub> <sup>o</sup>
4258.587	23475.35	20	1	16415 <sub>2/2</sub> —39891 <sub>2/2</sub> <sup>o</sup>
4258.587	23475.35	20	1	19791 <sub>4/2</sub> —43267 <sub>3/2</sub> <sup>o</sup>
4262.270	23455.07	10000	400	0 <sub>2/2</sub> —23455 <sub>2/2</sub> <sup>o</sup>
4262.687	23452.78	1000	20	11063 <sub>2/2</sub> —34515 <sub>2/2</sub> <sup>o</sup>
4266.158	23433.69	80	1	16133 <sub>4/2</sub> —39567 <sub>3/2</sub> <sup>o</sup>
4266.158	23433.69	80	1	16415 <sub>2/2</sub> —39849 <sub>3/2</sub> <sup>o</sup>
4266.983	23429.16	2		21447 <sub>1/2</sub> —44876 <sub>1/2</sub> <sup>o</sup>
4267.978	23423.70	8		20686 <sub>2/2</sub> —44110 <sub>1/2</sub> <sup>o</sup>
4268.503	23420.82	30	1	20686 <sub>2/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4269.660	23414.47	4		39185 <sub>4 1/2</sub> <sup>o</sup> —62599 <sub>4 1/2</sub>
4274.971	23385.39	800	100	11890 <sub>0 1/2</sub> <sup>o</sup> —35276 <sub>0 1/2</sub> <sup>o</sup>
4275.504	23382.47	18	2	20523 <sub>2 1/2</sub> <sup>o</sup> —43905 <sub>3 1/2</sub> <sup>o</sup>
4275.906	23380.27	20	2	19791 <sub>4 1/2</sub> <sup>o</sup> —43172 <sub>3 1/2</sub> <sup>o</sup>
4278.895	23363.94	800	100	11578 <sub>1 1/2</sub> <sup>o</sup> —34942 <sub>1 1/2</sub> <sup>o</sup>
4279.263	23361.93	18	2	19903 <sub>3 1/2</sub> <sup>o</sup> —43265 <sub>4 1/2</sub> <sup>o</sup>
4286.353	23323.29	4	1	20783 <sub>3 1/2</sub> <sup>o</sup> —44107 <sub>2 1/2</sub> <sup>o</sup>
4286.843	23320.62	1		20686 <sub>2 1/2</sub> <sup>o</sup> —44007 <sub>2 1/2</sub> <sup>o</sup>
4289.115	23308.27	5	1	19702 <sub>1 1/2</sub> <sup>o</sup> —43011 <sub>2 1/2</sub> <sup>o</sup>
4289.563	23305.84	20	2	19791 <sub>4 1/2</sub> <sup>o</sup> —43097 <sub>4 1/2</sub> <sup>o</sup>
4294.351	23279.85	80	12	16287 <sub>3 1/2</sub> <sup>o</sup> —39567 <sub>3 1/2</sub> <sup>o</sup>
4297.058	23265.19	10000	1000	0 <sub>2 1/2</sub> <sup>o</sup> —23265 <sub>3 1/2</sub> <sup>o</sup>
4302.319	23236.74	1		21450 <sub>4 1/2</sub> <sup>o</sup> —44687 <sub>3 1/2</sub> <sup>o</sup>
4304.848	23223.09	4	1	20783 <sub>3 1/2</sub> <sup>o</sup> —44007 <sub>2 1/2</sub> <sup>o</sup>
4305.516	23219.48	15	2	20686 <sub>2 1/2</sub> <sup>o</sup> —43905 <sub>3 1/2</sub> <sup>o</sup>
4305.819	23217.85	80	8	20639 <sub>5 1/2</sub> <sup>o</sup> —43857 <sub>6 1/2</sub> <sup>o</sup>
4308.615	23202.78	15	2	19702 <sub>1 1/2</sub> <sup>o</sup> —42905 <sub>2 1/2</sub> <sup>o</sup>
4309.370	23198.72	2		19702 <sub>1 1/2</sub> <sup>o</sup> —42901 <sub>1 1/2</sub> <sup>o</sup>
4309.858	23196.09	1		23460 <sub>3 1/2</sub> <sup>o</sup> —46656 <sub>3 1/2</sub> <sup>o</sup>
4310.222	23194.13	60	6	19903 <sub>3 1/2</sub> <sup>o</sup> —43097 <sub>4 1/2</sub> <sup>o</sup>
4311.376	23187.92	3		20783 <sub>3 1/2</sub> <sup>o</sup> —43971 <sub>4 1/2</sub> <sup>o</sup>
4312.504	23181.86	10	1	19895 <sub>2 1/2</sub> <sup>o</sup> —43077 <sub>3 1/2</sub> <sup>o</sup>
4314.021	23173.71	9	1	19903 <sub>3 1/2</sub> <sup>o</sup> —43077 <sub>3 1/2</sub> <sup>o</sup>
4314.679	23170.17	1		16428 <sub>2 1/2</sub> <sup>o</sup> —39598 <sub>2 1/2</sub> <sup>o</sup>
4318.061	23152.03	6	1	16415 <sub>2 1/2</sub> <sup>o</sup> —39567 <sub>3 1/2</sub> <sup>o</sup>
4318.983	23147.08	5	1	24147 <sub>4 1/2</sub> <sup>o</sup> —47294 <sub>5 1/2</sub> <sup>o</sup>
4323.016	23125.49	2		21450 <sub>4 1/2</sub> <sup>o</sup> —44576 <sub>4 1/2</sub> <sup>o</sup>
4323.356	23123.67	80	7	17282 <sub>3 1/2</sub> <sup>o</sup> —40406 <sub>3 1/2</sub> <sup>o</sup>
4323.958	23120.45	12	2	17282 <sub>3 1/2</sub> <sup>o</sup> —40403 <sub>4 1/2</sub> <sup>o</sup>
4324.867	23115.59	12	2	19895 <sub>2 1/2</sub> <sup>o</sup> —43011 <sub>2 1/2</sub> <sup>o</sup>
4326.393	23107.44	3	1	19903 <sub>3 1/2</sub> <sup>o</sup> —43011 <sub>2 1/2</sub> <sup>o</sup>
4328.778	23094.71	60	6	17146 <sub>5 1/2</sub> <sup>o</sup> —40241 <sub>5 1/2</sub> <sup>o</sup>
4330.231	23086.96	2		21752 <sub>3 1/2</sub> <sup>o</sup> —44839 <sub>3 1/2</sub> <sup>o</sup>
4331.866	23078.25	1		17328 <sub>4 1/2</sub> <sup>o</sup> —40406 <sub>3 1/2</sub> <sup>o</sup>
4332.452	23075.13	150	10	17328 <sub>4 1/2</sub> <sup>o</sup> —40403 <sub>4 1/2</sub> <sup>o</sup>
4335.187	23060.57	4	1	21206 <sub>2 1/2</sub> <sup>o</sup> —44266 <sub>3 1/2</sub> <sup>o</sup>
4336.855	23051.70	400 <i>cw</i>	40 <i>cw</i>	11890 <sub>0 1/2</sub> <sup>o</sup> —34942 <sub>1 1/2</sub> <sup>o</sup>
4338.248	23044.30	2 <i>h</i>		16415 <sub>2 1/2</sub> <sup>o</sup> —39459 <sub>2 1/2</sub> <sup>o</sup>
4341.109	23029.11	2		21926 <sub>2 1/2</sub> <sup>o</sup> —44955 <sub>1 1/2</sub> <sup>o</sup>
4342.242	23023.10	20	2	20523 <sub>2 1/2</sub> <sup>o</sup> —43546 <sub>2 1/2</sub> <sup>o</sup>
4342.570	23021.36	4	1	20783 <sub>3 1/2</sub> <sup>o</sup> —43805 <sub>3 1/2</sub> <sup>o</sup>
4345.442	23006.15	10		19895 <sub>2 1/2</sub> <sup>o</sup> —42901 <sub>1 1/2</sub> <sup>o</sup>
4350.013	22981.97	5 <i>h</i>		19791 <sub>4 1/2</sub> <sup>o</sup> —42773 <sub>5 1/2</sub> <sup>o</sup>
4350.415	22979.85	1	1	19791 <sub>4 1/2</sub> <sup>o</sup> —42771 <sub>3 1/2</sub> <sup>o</sup>
4354.823	22956.59	2		21920 <sub>2 1/2</sub> <sup>o</sup> —44876 <sub>1 1/2</sub> <sup>o</sup>
4355.398	22953.56	15 <i>w</i>	2	17282 <sub>3 1/2</sub> <sup>o</sup> —40236 <sub>3 1/2</sub> <sup>o</sup>
4356.093	22949.90	3	1	21926 <sub>2 1/2</sub> <sup>o</sup> —44876 <sub>1 1/2</sub> <sup>o</sup>
4358.491	22937.27	400	40	11578 <sub>1 1/2</sub> <sup>o</sup> —34515 <sub>2 1/2</sub> <sup>o</sup>
4359.257	22933.24	200	30	21204 <sub>4 1/2</sub> <sup>o</sup> —44138 <sub>5 1/2</sub> <sup>o</sup>
4361.959	22919.03	20	2	21920 <sub>2 1/2</sub> <sup>o</sup> —44839 <sub>3 1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4363.014	22913.49	80	8	17328 <sub>4 1/2</sub> —40241 <sub>5 1/2</sub> <sup>o</sup>
4364.017	22908.23	1		17328 <sub>4 1/2</sub> —40236 <sub>3 1/2</sub> <sup>o</sup>
4364.889	22903.65	1		21206 <sub>2 1/2</sub> —44110 <sub>1 1/2</sub> <sup>o</sup>
4365.425	22900.84	1		21206 <sub>2 1/2</sub> —44107 <sub>2 1/2</sub> <sup>o</sup>
4365.999	22897.83	4		26917 <sub>5 1/2</sub> —49815 <sub>4 1/2</sub> <sup>o</sup>
4368.340	22885.55	2		21204 <sub>4 1/2</sub> —44090 <sub>3 1/2</sub> <sup>o</sup>
4368.616	22884.11	1		21206 <sub>2 1/2</sub> —44090 <sub>3 1/2</sub> <sup>o</sup>
4368.940	22882.41	30	4	20384 <sub>3 1/2</sub> —43267 <sub>3 1/2</sub> <sup>o</sup>
4369.255	22880.76	25	3	20384 <sub>3 1/2</sub> —43265 <sub>4 1/2</sub> <sup>o</sup>
4370.094	22876.37	70	7	19895 <sub>2 1/2</sub> —42771 <sub>3 1/2</sub> <sup>o</sup>
4370.717	22873.11	60	7	20639 <sub>5 1/2</sub> —43512 <sub>5 1/2</sub> <sup>o</sup>
4371.661	22868.17	1		19903 <sub>3 1/2</sub> —42771 <sub>3 1/2</sub> <sup>o</sup>
4372.086	22865.95	10	1	20783 <sub>3 1/2</sub> —43649 <sub>4 1/2</sub> <sup>o</sup>
4373.181	22860.22	15	2	20686 <sub>2 1/2</sub> —43546 <sub>2 1/2</sub> <sup>o</sup>
4373.952	22856.19	70	7	21719 <sub>5 1/2</sub> —44576 <sub>4 1/2</sub> <sup>o</sup>
4380.132	22823.94	2		21752 <sub>3 1/2</sub> —44576 <sub>4 1/2</sub> <sup>o</sup>
4381.583	22816.39	4	1	21450 <sub>4 1/2</sub> —44266 <sub>3 1/2</sub> <sup>o</sup>
4383.075	22808.62	60	6	19791 <sub>4 1/2</sub> —42600 <sub>5 1/2</sub> <sup>o</sup>
4384.317	22802.16	1		21920 <sub>2 1/2</sub> —44722 <sub>1 1/2</sub> <sup>o</sup>
4385.626	22795.35	1		21926 <sub>2 1/2</sub> —44722 <sub>1 1/2</sub> <sup>o</sup>
4385.881	22794.03	1		21447 <sub>1 1/2</sub> —44241 <sub>2 1/2</sub> <sup>o</sup>
4387.501	22785.61	15	1	21752 <sub>3 1/2</sub> —44537 <sub>2 1/2</sub> <sup>o</sup>
4388.605	22779.88	3	1	20231 <sub>1 1/2</sub> —43011 <sub>2 1/2</sub> <sup>o</sup>
4391.923	22762.67	3	1	20783 <sub>3 1/2</sub> —43546 <sub>2 1/2</sub> <sup>o</sup>
4393.787	22753.01	7		19791 <sub>4 1/2</sub> —42545 <sub>4 1/2</sub> <sup>o</sup>
4395.571	22743.78	2		20523 <sub>2 1/2</sub> —43267 <sub>3 1/2</sub> <sup>o</sup>
4398.003	22731.20	1		19791 <sub>4 1/2</sub> —42523 <sub>3 1/2</sub> <sup>o</sup>
4399.337	22724.31	4		16874 <sub>3 1/2</sub> —39598 <sub>2 1/2</sub> <sup>o</sup>
4401.518	22713.05	10		20384 <sub>3 1/2</sub> —43097 <sub>4 1/2</sub> <sup>o</sup>
4402.054	22710.28	1 h		19903 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub> <sup>o</sup>
4403.905	22700.74	6	1	21204 <sub>4 1/2</sub> —43905 <sub>3 1/2</sub> <sup>o</sup>
4404.176	22699.34	2		21206 <sub>2 1/2</sub> —43905 <sub>3 1/2</sub> <sup>o</sup>
4404.403	22698.17	1		23957 <sub>3 1/2</sub> —46656 <sub>3 1/2</sub> <sup>o</sup>
4405.081	22694.68	7	1	17282 <sub>3 1/2</sub> —39977 <sub>2 1/2</sub> <sup>o</sup>
4405.485	22692.60	2		20384 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub> <sup>o</sup>
4405.922	22690.35	3		22265 <sub>2 1/2</sub> —44955 <sub>1 1/2</sub> <sup>o</sup>
4406.427	22687.75	1		21450 <sub>4 1/2</sub> —44138 <sub>5 1/2</sub> <sup>o</sup>
4407.346	22683.02	7	1	42102 <sub>2 1/2</sub> —64785 <sub>3 1/2</sub> <sup>o</sup>
4409.034	22674.33	3	1	20231 <sub>1 1/2</sub> —42905 <sub>2 1/2</sub> <sup>o</sup>
4409.815	22670.32	2		20231 <sub>1 1/2</sub> —42901 <sub>1 1/2</sub> <sup>o</sup>
4412.004	22659.07	100	7	22180 <sub>4 1/2</sub> —44839 <sub>3 1/2</sub> <sup>o</sup>
4413.322	22652.30	1		19791 <sub>4 1/2</sub> —42444 <sub>5 1/2</sub> <sup>o</sup>
4415.452	22641.37	20 c	1	19903 <sub>3 1/2</sub> —42545 <sub>4 1/2</sub> <sup>o</sup>
4415.718	22640.01	5	1	21450 <sub>4 1/2</sub> —44090 <sub>3 1/2</sub> <sup>o</sup>
4418.412	22626.21	7	1	20639 <sub>5 1/2</sub> —43265 <sub>4 1/2</sub> <sup>o</sup>
4420.302	22616.53	80	6	17146 <sub>5 1/2</sub> —39763 <sub>4 1/2</sub> <sup>o</sup>
4421.430	22610.76	2 h		39891 <sub>2 1/2</sub> —62501 <sub>3 1/2</sub> <sup>o</sup>
4421.878	22608.47	3 h		17282 <sub>3 1/2</sub> —39891 <sub>2 1/2</sub> <sup>o</sup>
4425.139	22591.81	1 h		19702 <sub>1 1/2</sub> —42294 <sub>2 1/2</sub> <sup>o</sup>
4427.294	22580.82	10	1	20686 <sub>2 1/2</sub> —43267 <sub>3 1/2</sub> <sup>o</sup>



TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4428.702	22573.64	2	1	22265 <sub>2 1/2</sub> —44839 <sub>3 1/2</sub>
4429.592	22569.10	1000	200	10516 <sub>3 1/2</sub> —33085 <sub>2 1/2</sub>
4431.716	22558.28	15	2	20639 <sub>5 1/2</sub> —43197 <sub>6 1/2</sub>
4432.571	22553.93	12	2	20523 <sub>2 1/2</sub> —43077 <sub>3 1/2</sub>
4433.783	22547.77	1 <i>h</i>		19702 <sub>1 1/2</sub> —42250 <sub>2 1/2</sub>
4436.731	22532.79	2		20639 <sub>5 1/2</sub> —43172 <sub>5 1/2</sub>
4437.056	22531.14	1 <i>h</i>		31414 <sub>3 1/2</sub> —53945 <sub>2 1/2</sub>
4438.999	22521.27	5		17328 <sub>4 1/2</sub> —39849 <sub>3 1/2</sub>
4441.418	22509.01	2 <i>h</i>		24147 <sub>4 1/2</sub> —46656 <sub>3 1/2</sub>
4446.502	22483.27	8	2	20783 <sub>3 1/2</sub> —43267 <sub>3 1/2</sub>
4447.015	22480.68	12 <i>c</i>		17282 <sub>3 1/2</sub> —39763 <sub>4 1/2</sub>
4450.790	22461.61	5 <i>c</i>	1	24147 <sub>4 1/2</sub> —46608 <sub>3 1/2</sub>
4451.433	22458.37	1		20639 <sub>5 1/2</sub> —43097 <sub>4 1/2</sub>
4452.078	22455.11	6		21450 <sub>4 1/2</sub> —43905 <sub>3 1/2</sub>
4452.273	22454.13	60	6	19791 <sub>4 1/2</sub> —42246 <sub>3 1/2</sub>
4454.142	22444.71	3		21204 <sub>4 1/2</sub> —43649 <sub>4 1/2</sub>
4454.811	22441.34	1		31503 <sub>1 1/2</sub> —53945 <sub>2 1/2</sub>
4456.621	22432.22	20	3	20384 <sub>3 1/2</sub> —42817 <sub>4 1/2</sub>
4458.057	22425.00	3		19791 <sub>4 1/2</sub> —42217 <sub>4 1/2</sub>
4459.395	22418.27	10	2	21719 <sub>5 1/2</sub> —44138 <sub>5 1/2</sub>
4463.038	22399.97	20	2	19702 <sub>1 1/2</sub> —42102 <sub>2 1/2</sub>
4463.535	22397.48	1		41529 <sub>3 1/2</sub> —63926 <sub>2 1/2</sub>
4463.852	22395.89	60	6	22180 <sub>4 1/2</sub> —44576 <sub>4 1/2</sub>
4464.277	22393.75	15	1	25058 <sub>3 1/2</sub> —47452 <sub>2 1/2</sub>
4464.864	22390.81	6		19903 <sub>3 1/2</sub> —42294 <sub>2 1/2</sub>
4465.090	22389.68	20	2	19827 <sub>0 1/2</sub> —42217 <sub>4 1/2</sub>
4465.613	22387.06	80	8	20384 <sub>3 1/2</sub> —42771 <sub>3 1/2</sub>
4466.575	22382.23	3	1	20523 <sub>2 1/2</sub> —42905 <sub>2 1/2</sub>
4467.384	22378.18	3	1	20523 <sub>2 1/2</sub> —42901 <sub>1 1/2</sub>
4468.309	22373.55	1 <i>h</i>		22503 <sub>1 1/2</sub> —44876 <sub>1 1/2</sub>
4469.173	22369.22	10	1	22503 <sub>1 1/2</sub> —44872 <sub>2 1/2</sub>
4470.369	22363.24	1		40236 <sub>3 1/2</sub> —62599 <sub>4 1/2</sub>
4471.986	22355.15	3		19895 <sub>2 1/2</sub> —42250 <sub>2 1/2</sub>
4473.662	22346.78	15 <i>c</i>	2	21920 <sub>2 1/2</sub> —44266 <sub>3 1/2</sub>
4474.506	22342.56	8	1	19903 <sub>3 1/2</sub> —42246 <sub>3 1/2</sub>
4475.003	22340.08	7	1	21926 <sub>2 1/2</sub> —44266 <sub>3 1/2</sub>
4478.673	22321.77	4	1	19895 <sub>2 1/2</sub> —42217 <sub>4 1/2</sub>
4480.251	22313.91	100	10	20783 <sub>3 1/2</sub> —43097 <sub>4 1/2</sub>
4481.533	22307.53	1000	100	21204 <sub>4 1/2</sub> —43512 <sub>4 1/2</sub>
4484.351	22293.51	10	1	20783 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub>
4486.050	22285.07	6 <i>c</i>	1	17282 <sub>3 1/2</sub> —39567 <sub>3 1/2</sub>
4487.061	22280.05	3000	300	11063 <sub>2 1/2</sub> —33343 <sub>1 1/2</sub>
4488.624	22272.29	3		22265 <sub>2 1/2</sub> —44537 <sub>2 1/2</sub>
4490.128	22264.83	1		25405 <sub>1 1/2</sub> —47670 <sub>0 1/2</sub>
4492.735	22251.91	10	1	21719 <sub>5 1/2</sub> —43971 <sub>4 1/2</sub>
4493.388	22248.68	8 <i>h</i>	7 <i>h</i>	23460 <sub>3 1/2</sub> —45708 <sub>4 1/2</sub>
4495.027	22240.56	400	50	19791 <sub>4 1/2</sub> —42032 <sub>5 1/2</sub>
4495.213	22239.64	20		17328 <sub>4 1/2</sub> —39567 <sub>3 1/2</sub>
4497.337	22229.14	2 <i>w</i>		20384 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub>
4497.713	22227.28	5		20783 <sub>3 1/2</sub> —43011 <sub>2 1/2</sub>



TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4498.529	22223.25	60	8	22615 <sub>3/2</sub> <sup>o</sup> —44839 <sub>3/2</sub> <sup>o</sup>
4498.529	22223.25	60	8	25058 <sub>3/2</sub> <sup>o</sup> —47281 <sub>2/2</sub> <sup>o</sup>
4499.295	22219.47	7 <i>h</i>	1 <i>h</i>	20686 <sub>2/2</sub> <sup>o</sup> —42905 <sub>2/2</sub> <sup>o</sup>
4501.743	22207.38	60	6	19895 <sub>2/2</sub> <sup>o</sup> —42102 <sub>2/2</sub> <sup>o</sup>
4503.399	22199.22	100	10	21450 <sub>4/2</sub> <sup>o</sup> —43649 <sub>4/2</sub> <sup>o</sup>
4505.473	22189.00	2		39849 <sub>3/2</sub> <sup>o</sup> —62038 <sub>3/2</sub> <sup>o</sup>
4505.881	22186.99	3		21920 <sub>2/2</sub> <sup>o</sup> —44107 <sub>2/2</sub> <sup>o</sup>
4506.640	22183.25	2		21926 <sub>2/2</sub> <sup>o</sup> —44110 <sub>1/2</sub> <sup>o</sup>
4507.177	22180.61	4		26917 <sub>5/2</sub> <sup>o</sup> —49098 <sub>4/2</sub> <sup>o</sup>
4507.775	22177.67	3		20639 <sub>5/2</sub> <sup>o</sup> —42817 <sub>4/2</sub> <sup>o</sup>
4508.719	22173.03	8	1	20523 <sub>2/2</sub> <sup>o</sup> —42696 <sub>2/2</sub> <sup>o</sup>
4511.312	22160.28	3 <i>h</i>		20384 <sub>3/2</sub> <sup>o</sup> —42545 <sub>4/2</sub> <sup>o</sup>
4512.691	22153.51	8		27660 <sub>3/2</sub> <sup>o</sup> —19813 <sub>2/2</sub> <sup>o</sup>
4514.019	22146.99	2 <i>h</i>		23957 <sub>3/2</sub> <sup>o</sup> —46104 <sub>2/2</sub> <sup>o</sup>
4515.978	22137.38	1000	100	21719 <sub>5/2</sub> <sup>o</sup> —43857 <sub>6/2</sub> <sup>o</sup>
4522.841	22103.79	10000	1000	10516 <sub>3/2</sub> <sup>o</sup> —32620 <sub>3/2</sub> <sup>o</sup>
4525.760	22089.54	2		19903 <sub>3/2</sub> <sup>o</sup> —41993 <sub>3/2</sub> <sup>o</sup>
4526.321	22086.80	10	2	22180 <sub>4/2</sub> <sup>o</sup> —44266 <sub>3/2</sub> <sup>o</sup>
4526.507	22085.89	8	1	19702 <sub>1/2</sub> <sup>o</sup> —41788 <sub>1/2</sub> <sup>o</sup>
4531.157	22063.23	30	4	20231 <sub>1/2</sub> <sup>o</sup> —42294 <sub>2/2</sub> <sup>o</sup>
4531.391	22062.09	8	1	21204 <sub>4/2</sub> <sup>o</sup> —43267 <sub>3/2</sub> <sup>o</sup>
4531.391	22062.09	8	1	21450 <sub>4/2</sub> <sup>o</sup> —43512 <sub>5/2</sub> <sup>o</sup>
4531.703	22060.57	20	3	21204 <sub>4/2</sub> <sup>o</sup> —43265 <sub>4/2</sub> <sup>o</sup>
4534.236	22048.25	1		22265 <sub>2/2</sub> <sup>o</sup> —44313 <sub>1/2</sub> <sup>o</sup>
4537.052	22034.56	2		22503 <sub>1/2</sub> <sup>o</sup> —44537 <sub>2/2</sub> <sup>o</sup>
4537.347	22033.13	100	10	20783 <sub>3/2</sub> <sup>o</sup> —42817 <sub>4/2</sub> <sup>o</sup>
4538.556	22027.26	3	1	19895 <sub>2/2</sub> <sup>o</sup> —41922 <sub>2/2</sub> <sup>o</sup>
4539.530	22022.53	2000	500	11063 <sub>2/2</sub> <sup>o</sup> —33085 <sub>2/2</sub> <sup>o</sup>
4541.247	22014.21	5		42771 <sub>3/2</sub> <sup>o</sup> —64785 <sub>3/2</sub> <sup>o</sup>
4542.090	22010.12	400	40	20686 <sub>2/2</sub> <sup>o</sup> —42696 <sub>2/2</sub> <sup>o</sup>
4543.900	22001.35	5	1	22265 <sub>2/2</sub> <sup>o</sup> —44266 <sub>3/2</sub> <sup>o</sup>
4544.609	21997.92	3		27940 <sub>2/2</sub> <sup>o</sup> —49938 <sub>2/2</sub> <sup>o</sup>
4545.546	21993.39	50	5	19903 <sub>3/2</sub> <sup>o</sup> —41896 <sub>4/2</sub> <sup>o</sup>
4546.672	21987.94	2		20783 <sub>3/2</sub> <sup>o</sup> —42771 <sub>3/2</sub> <sup>o</sup>
4549.439	21974.57	80	8	20639 <sub>5/2</sub> <sup>o</sup> —42613 <sub>4/2</sub> <sup>o</sup>
4552.204	21961.22	400	40	20639 <sub>5/2</sub> <sup>o</sup> —42600 <sub>5/2</sub> <sup>o</sup>
4552.854	21958.09	800	80	22180 <sub>4/2</sub> <sup>o</sup> —44138 <sub>5/2</sub> <sup>o</sup>
4557.046	21937.89	1000	100	19791 <sub>4/2</sub> <sup>o</sup> —41729 <sub>3/2</sub> <sup>o</sup>
4558.711	21929.87	40	4	21719 <sub>5/2</sub> <sup>o</sup> —43649 <sub>4/2</sub> <sup>o</sup>
4560.205	21922.69	15	2	19702 <sub>1/2</sub> <sup>o</sup> —41625 <sub>1/2</sub> <sup>o</sup>
4560.421	21921.65	20 <i>c</i>	2	24147 <sub>4/2</sub> <sup>o</sup> —46068 <sub>4/2</sub> <sup>o</sup>
4562.522	21911.56	8	1	19791 <sub>4/2</sub> <sup>o</sup> —41703 <sub>4/2</sub> <sup>o</sup>
4562.913	21909.68	30	3	20384 <sub>3/2</sub> <sup>o</sup> —42294 <sub>2/2</sub> <sup>o</sup>
4563.741	21905.70	25	2	20639 <sub>5/2</sub> <sup>o</sup> —42545 <sub>4/2</sub> <sup>o</sup>
4564.539	21901.87	2000	300	11578 <sub>1/2</sub> <sup>o</sup> —33480 <sub>0/2</sub> <sup>o</sup>
4565.436	21897.57	4	1	21752 <sub>3/2</sub> <sup>o</sup> —43649 <sub>4/2</sub> <sup>o</sup>
4566.421	21892.85	7	1	21204 <sub>4/2</sub> <sup>o</sup> —43097 <sub>4/2</sub> <sup>o</sup>
4568.135	21884.63	3		29539 <sub>4/2</sub> <sup>o</sup> —51423 <sub>3/2</sub> <sup>o</sup>
4570.599	21872.84	15		27940 <sub>2/2</sub> <sup>o</sup> —49813 <sub>2/2</sub> <sup>o</sup>
4570.861	21871.58	60	10	20231 <sub>1/2</sub> <sup>o</sup> —42102 <sub>2/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4571.453	21868.75	2		19895 <sub>2 1/2</sub> —41764 <sub>2 1/2</sub>
4572.062	21865.84	5	1	20384 <sub>3 1/2</sub> —42250 <sub>2 1/2</sub>
4573.977	21856.68	8	1	25174 <sub>2 1/2</sub> —47030 <sub>1 1/2</sub>
4576.521	21844.53	2		27971 <sub>4 1/2</sub> —49815 <sub>4 1/2</sub>
4576.521	21844.53	2		22265 <sub>2 1/2</sub> —44110 <sub>1 1/2</sub>
4577.129	21841.63	20	3	22265 <sub>2 1/2</sub> —44107 <sub>2 1/2</sub>
4578.447	21835.34	1000	100	20639 <sub>5 1/2</sub> —42474 <sub>6 1/2</sub>
4579.559	21830.04	3		20783 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub>
4580.291	21826.55	3w		25405 <sub>1 1/2</sub> —47232 <sub>2 1/2</sub>
4580.613	21825.02	7	1	16415 <sub>2 1/2</sub> —38240 <sub>3 1/2</sub>
4582.377	21816.62	25	3	21450 <sub>4 1/2</sub> —43267 <sub>3 1/2</sub>
4582.726	21814.96	4	1	21450 <sub>4 1/2</sub> —43265 <sub>4 1/2</sub>
4583.246	21812.48	1		23455 <sub>2 1/2</sub> —45267 <sub>1 1/2</sub>
4583.686	21810.39	2		22503 <sub>1 1/2</sub> —44313 <sub>1 1/2</sub>
4584.851	21804.85	50	4	20639 <sub>5 1/2</sub> —42444 <sub>5 1/2</sub>
4585.884	21799.93	150	15	19903 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub>
4586.309	21797.91	4	1	19827 <sub>0 1/2</sub> —41625 <sub>1 1/2</sub>
4587.037	21794.45	6	1	27940 <sub>2 1/2</sub> —49735 <sub>1 1/2</sub>
4587.628	21791.65	4	1	22180 <sub>4 1/2</sub> —43971 <sub>4 1/2</sub>
4588.232	21788.78	30	3	19791 <sub>4 1/2</sub> —41580 <sub>5 1/2</sub>
4588.536	21787.33	2	2	28151 <sub>1 1/2</sub> —49938 <sub>2 1/2</sub>
4591.988	21770.96	1		20523 <sub>2 1/2</sub> —42294 <sub>2 1/2</sub>
4593.346	21764.52	1000	100	11578 <sub>1 1/2</sub> —33343 <sub>1 1/2</sub>
4594.059	21761.14	100	10	20783 <sub>3 1/2</sub> —42545 <sub>4 1/2</sub>
4598.217	21741.46	10	1	22265 <sub>2 1/2</sub> —44007 <sub>2 1/2</sub>
4601.231	21727.22	3		20523 <sub>2 1/2</sub> —42250 <sub>2 1/2</sub>
4601.586	21725.55	2		22180 <sub>4 1/2</sub> —43905 <sub>3 1/2</sub>
4602.408	21721.67	30	3	21450 <sub>4 1/2</sub> —43172 <sub>5 1/2</sub>
4602.721	21720.19	100	10	23265 <sub>3 1/2</sub> —44985 <sub>3 1/2</sub>
4603.162	21718.11	15	2	20384 <sub>3 1/2</sub> —42102 <sub>2 1/2</sub>
4607.170	21699.22	3		21206 <sub>2 1/2</sub> —42905 <sub>2 1/2</sub>
4608.005	21695.28	80	8	21206 <sub>2 1/2</sub> —42901 <sub>1 1/2</sub>
4608.314	21693.83	20	2	20523 <sub>2 1/2</sub> —42217 <sub>1 1/2</sub>
4608.833	21691.39	8	1	20231 <sub>1 1/2</sub> —41922 <sub>2 1/2</sub>
4609.159	21689.85	300 c	30 c	13252 <sub>2 1/2</sub> —34942 <sub>1 1/2</sub>
4611.171	21680.39	40		40821 <sub>2 1/2</sub> —62501 <sub>3 1/2</sub>
4611.171	21680.39	40		42246 <sub>3 1/2</sub> —63926 <sub>2 1/2</sub>
4611.386	21679.38	2		23588 <sub>1 1/2</sub> —45267 <sub>1 1/2</sub>
4611.811	21677.38	3		27660 <sub>3 1/2</sub> —49337 <sub>2 1/2</sub>
4616.857	21653.69	1000	100	23265 <sub>3 1/2</sub> —44919 <sub>4 1/2</sub>
4617.447	21650.92	20	2	22615 <sub>3 1/2</sub> —44266 <sub>3 1/2</sub>
4619.725	21640.24	1		22265 <sub>2 1/2</sub> —43905 <sub>3 1/2</sub>
4621.129	21633.67	30		19895 <sub>2 1/2</sub> —41529 <sub>3 1/2</sub>
4621.458	21632.13	40		42294 <sub>2 1/2</sub> —63926 <sub>2 1/2</sub>
4622.691	21626.36	200 c	20 c	21920 <sub>2 1/2</sub> —43546 <sub>2 1/2</sub>
4622.950	21625.15	30 c	1 c	27940 <sub>2 1/2</sub> —49565 <sub>2 1/2</sub>
4622.950	21625.15	30 c	1 c	22180 <sub>4 1/2</sub> —43805 <sub>3 1/2</sub>
4624.122	21619.67	3	1	21926 <sub>2 1/2</sub> —43546 <sub>2 1/2</sub>
4624.961	21615.75	300	30	23455 <sub>2 1/2</sub> —45071 <sub>2 1/2</sub>
4625.628	21612.63	5	1	27517 <sub>2 1/2</sub> —49130 <sub>3 1/2</sub>

TABLE 3. Classified lines of Tc I

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4625.753	21612.04	5	1	21204 <sub>4 1/2</sub> —42817 <sub>4 1/2</sub> <sup>a</sup>
4626.557	21608.29	20		20384 <sub>3 1/2</sub> —41993 <sub>3 1/2</sub> <sup>a</sup>
4626.557	21608.29	20		20686 <sub>2 1/2</sub> —42294 <sub>2 1/2</sub> <sup>a</sup>
4626.803	21607.14	2		27369 <sub>4 1/2</sub> <sup>a</sup> —48977 <sub>4 1/2</sub>
4628.063	21601.26	60	4	23588 <sub>1 1/2</sub> <sup>a</sup> —45189 <sub>0 1/2</sub>
4630.572	21589.55	1000		11890 <sub>0 1/2</sub> —33480 <sub>0 1/2</sub>
4631.378	21585.80	80	3	27660 <sub>3 1/2</sub> <sup>a</sup> —49245 <sub>3 1/2</sub>
4631.815	21583.76	10	1	28151 <sub>1 1/2</sub> <sup>a</sup> —49735 <sub>1 1/2</sub>
4632.740	21579.45	30	3	20523 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub> <sup>a</sup>
4635.433	21566.91	1		21204 <sub>4 1/2</sub> —42771 <sub>3 1/2</sub> <sup>a</sup>
4635.752	21565.43	150	15	21206 <sub>2 1/2</sub> —42771 <sub>3 1/2</sub> <sup>a</sup>
4637.500	21557.30	3000	300	11063 <sub>2 1/2</sub> —32620 <sub>3 1/2</sub> <sup>a</sup>
4640.015	21545.62	2		21719 <sub>5 1/2</sub> —43265 <sub>4 1/2</sub> <sup>a</sup>
4641.296	21539.67	6	1	22265 <sub>2 1/2</sub> —43805 <sub>3 1/2</sub> <sup>a</sup>
4641.669	21537.94	1		20384 <sub>3 1/2</sub> —41922 <sub>2 1/2</sub> <sup>a</sup>
4645.490	21520.22	150 <sup>c</sup>	5 <sup>c</sup>	23588 <sub>1 1/2</sub> <sup>a</sup> —45108 <sub>1 1/2</sub>
4646.620	21514.99	80	8	21752 <sub>3 1/2</sub> —43267 <sub>3 1/2</sub> <sup>a</sup>
4647.573	21510.58	120	10	20783 <sub>3 1/2</sub> —42294 <sub>2 1/2</sub> <sup>a</sup>
4648.332	21507.07	2000	200	11578 <sub>1 1/2</sub> —33085 <sub>2 1/2</sub> <sup>a</sup>
4652.005	21490.09	2		21206 <sub>2 1/2</sub> —42696 <sub>2 1/2</sub> <sup>a</sup>
4653.609	21482.68	100	1	23588 <sub>1 1/2</sub> <sup>a</sup> —45071 <sub>2 1/2</sub>
4654.658	21477.84	120	10	21719 <sub>5 1/2</sub> —43197 <sub>5 1/2</sub> <sup>a</sup>
4655.363	21474.59	1		22615 <sub>3 1/2</sub> —44090 <sub>3 1/2</sub> <sup>a</sup>
4656.440	21469.62	1		20523 <sub>2 1/2</sub> —41993 <sub>3 1/2</sub> <sup>a</sup>
4656.440	21469.62	1		22180 <sub>4 1/2</sub> —43649 <sub>4 1/2</sub> <sup>a</sup>
4658.934	21458.13	2		21447 <sub>1 1/2</sub> —42905 <sub>2 1/2</sub> <sup>a</sup>
4659.798	21454.15	30	3	21447 <sub>1 1/2</sub> —42901 <sub>1 1/2</sub> <sup>a</sup>
4660.212	21452.24	2000 <sup>c</sup>	200	11890 <sub>0 1/2</sub> —33343 <sub>1 1/2</sub> <sup>a</sup>
4663.237	21438.33	2 <sup>h</sup>		28296 <sub>0 1/2</sub> —49735 <sub>1 1/2</sub>
4664.337	21433.27	100	10	20783 <sub>3 1/2</sub> —42217 <sub>4 1/2</sub> <sup>a</sup>
4668.879	21412.42	100	10	23460 <sub>3 1/2</sub> —44872 <sub>2 1/2</sub> <sup>a</sup>
4669.305	21410.47	2000	200	10516 <sub>3 1/2</sub> —31927 <sub>2 1/2</sub> <sup>a</sup>
4671.749	21399.26	10	1	20523 <sub>2 1/2</sub> —41922 <sub>2 1/2</sub> <sup>a</sup>
4672.170	21397.34	400	40	19702 <sub>1 1/2</sub> —41100 <sub>2 1/2</sub> <sup>a</sup>
4672.545	21395.62	3		21204 <sub>4 1/2</sub> —42600 <sub>5 1/2</sub> <sup>a</sup>
4672.824	21394.34	40	4	20231 <sub>1 1/2</sub> —41625 <sub>1 1/2</sub> <sup>a</sup>
4673.077	21393.18	45	4	20639 <sub>5 1/2</sub> —42032 <sub>5 1/2</sub> <sup>a</sup>
4678.073	21370.34	3		19702 <sub>1 1/2</sub> —41073 <sub>1 1/2</sub> <sup>a</sup>
4678.903	21366.55	200	20	21450 <sub>4 1/2</sub> —42817 <sub>4 1/2</sub> <sup>a</sup>
4682.732	21349.08	20 <sup>c</sup>	1	23455 <sub>2 1/2</sub> —44804 <sub>2 1/2</sub>
4683.599	21345.12	150	15	20384 <sub>3 1/2</sub> —41729 <sub>3 1/2</sub> <sup>a</sup>
4684.716	21340.03	2		21204 <sub>4 1/2</sub> —42545 <sub>4 1/2</sub> <sup>a</sup>
4686.406	21332.34	150	15	22180 <sub>4 1/2</sub> —43512 <sub>5 1/2</sub> <sup>a</sup>
4687.978	21325.19	100	15	21752 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub> <sup>a</sup>
4688.365	21323.43	3 <sup>h</sup>		21450 <sub>4 1/2</sub> —42773 <sub>5 1/2</sub> <sup>a</sup>
4689.359	21318.91	400	40	20384 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub> <sup>a</sup>
4689.359	21318.91	400	40	20783 <sub>3 1/2</sub> —42102 <sub>2 1/2</sub> <sup>a</sup>
4689.810	21316.86	150	5	21206 <sub>2 1/2</sub> —42523 <sub>3 1/2</sub> <sup>a</sup>
4689.810	21316.86	150	5	27660 <sub>3 1/2</sub> —48977 <sub>4 1/2</sub>
4692.384	21305.16	60	2	27940 <sub>2 1/2</sub> —49245 <sub>3 1/2</sub>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4694.282	21296.55	300	30	19791 $4_{1/2}$ —41088 $3_{1/2}$
4695.788	21289.72	15	3	22615 $3_{1/2}$ —43905 $3_{1/2}$
4697.047	21284.01	3		27660 $3_{1/2}$ —48944 $2_{1/2}$
4701.169	21265.35	2		20523 $2_{1/2}$ —41788 $0_{1/2}$
4701.814	21262.43	5	1	26950 $3_{1/2}$ —48213 $4_{1/2}$
4702.586	21258.94	1		21752 $3_{1/2}$ —43011 $2_{1/2}$
4702.880	21257.61	50	5	20639 $5_{1/2}$ —41897 $0_{4/2}$
4704.802	21248.93	15	2	21447 $1_{1/2}$ —42696 $2_{1/2}$
4705.542	21245.59	5	1	19827 $0_{1/2}$ —41073 $0_{4/2}$
4706.918	21239.38	1000	100	21204 $4_{1/2}$ —42444 $5_{1/2}$
4707.575	21236.41	20	2	20686 $2_{1/2}$ —41922 $2_{1/2}$
4712.120	21215.93	8 <i>c</i>		23588 $0_{1/2}$ —44804 $2_{1/2}$
4713.610	21209.22	3		20783 $3_{1/2}$ —41993 $3_{1/2}$
4714.222	21206.47	200	20	20523 $2_{1/2}$ —41729 $3_{1/2}$
4714.605	21204.75	40	4	19895 $2_{1/2}$ —41100 $2_{1/2}$
4716.787	21194.94	80	8	11063 $2_{1/2}$ —32258 $0_{1/2}$
4717.766	21190.54	2000	200	11063 $2_{1/2}$ —32253 $0_{1/2}$
4719.018	21184.92	500 <i>c</i>	50 <i>c</i>	19903 $3_{1/2}$ —41088 $3_{1/2}$
4719.281	21183.74	4000 <i>c</i>	400 <i>c</i>	16428 $2_{1/2}$ —37612 $3_{1/2}$
4723.828	21163.35	3	1	21450 $4_{1/2}$ —42613 $0_{4/2}$
4725.202	21157.19	1		21920 $2_{1/2}$ —43077 $3_{1/2}$
4726.798	21150.05	10	1	21450 $4_{1/2}$ —42600 $5_{1/2}$
4728.082	21144.31	50	5	20384 $3_{1/2}$ —41529 $3_{1/2}$
4729.302	21138.85	15	2	20783 $3_{1/2}$ —41922 $2_{1/2}$
4731.918	21127.17	10	1	27971 $4_{1/2}$ —49098 $0_{4/2}$
4732.044	21126.60	10	1	19702 $1_{1/2}$ —40829 $0_{1/2}$
4732.469	21124.71	25	1	27660 $3_{1/2}$ —48784 $3_{1/2}$
4733.869	21118.46	20 <i>c</i>	2 <i>c</i>	19702 $1_{1/2}$ —40821 $2_{1/2}$
4735.058	21113.16	8	1	20783 $3_{1/2}$ —41896 $4_{1/2}$
4736.515	21106.66	200 <i>cd</i>	20 <i>cd</i>	14169 $1_{1/2}$ —35276 $0_{1/2}$
4737.434	21102.57	1		20686 $2_{1/2}$ —41788 $0_{1/2}$
4738.652	21097.14	2		21719 $5_{1/2}$ —42817 $0_{4/2}$
4739.551	21093.14	100 <i>c</i>	10 <i>c</i>	27369 $0_{4/2}$ —48462 $3_{1/2}$
4740.608	21088.44	10000	000	10516 $3_{1/2}$ —31605 $3_{1/2}$
4741.284	21085.43	50	5	22180 $4_{1/2}$ —43265 $0_{4/2}$
4741.532	21084.33	6	1	21926 $2_{1/2}$ —43011 $2_{1/2}$
4742.940	21078.07	8	1	20686 $2_{1/2}$ —41764 $2_{1/2}$
4744.250	21072.25	1 <i>h</i>		23265 $0_{3/2}$ —44337 $2_{1/2}$
4749.614	21048.45	500	20	27369 $0_{4/2}$ —48418 $4_{1/2}$
4750.552	21044.30	3		21206 $2_{1/2}$ —42250 $2_{1/2}$
4750.759	21043.38	8	1	22503 $1_{1/2}$ —43546 $2_{1/2}$
4751.548	21039.88	15	2	21206 $2_{1/2}$ —42246 $3_{1/2}$
4756.111	21019.70	100	10	20231 $1_{1/2}$ —41250 $0_{1/2}$
4756.111	21019.70	100	10	21752 $3_{1/2}$ —42771 $0_{3/2}$
4757.502	21013.55	40 <i>c</i>	2	27274 $6_{1/2}$ —48287 $0_{5/2}$
4757.840	21012.06	2		21204 $4_{1/2}$ —42217 $0_{4/2}$
4758.094	21010.94	80	6	21206 $2_{1/2}$ —42217 $0_{1/2}$
4759.280	21005.70	40	3	20523 $2_{1/2}$ —41529 $3_{1/2}$
4759.806	21003.38	50	3	27940 $2_{1/2}$ —48944 $2_{1/2}$
4760.160	21001.82	2		22265 $2_{1/2}$ —43267 $0_{3/2}$

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4761.968	20993.85	40	3	21450 $4_{1/2}$ —42444 $5_{1/2}$
4762.362	20992.11	200	20	22180 $4_{1/2}$ —43172 $5_{1/2}$
4764.796	20981.39	5		21920 $2_{1/2}$ —42901 $1_{1/2}$
4764.987	20980.55	3		20783 $3_{1/2}$ —41764 $2_{1/2}$
4764.987	20980.55	3		43805 $5_{1/2}$ —64785 $3_{1/2}$
4765.381	20978.81	8	1	21926 $2_{1/2}$ —42905 $2_{1/2}$
4766.305	20974.74	7	1	21926 $2_{1/2}$ —42901 $1_{1/2}$
4771.543	20951.72	4000	400	11063 $2_{1/2}$ —32014 $2_{1/2}$
4773.237	20944.28	5	1	21752 $3_{1/2}$ —42696 $2_{1/2}$
4773.890	20941.42	200	20	20639 $5_{1/2}$ —41580 $5_{1/2}$
4776.355	20930.61	120	12	25174 $2_{1/2}$ —46104 $2_{1/2}$
4776.355	20930.61	120	12	22615 $3_{1/2}$ —43546 $2_{1/2}$
4783.925	20897.49	200	20	10516 $3_{1/2}$ —31414 $3_{1/2}$
4784.137	20896.57	20	2	21206 $2_{1/2}$ —42102 $2_{1/2}$
4784.720	20894.02	100	10	21719 $5_{1/2}$ —42613 $4_{1/2}$
4785.597	20890.19	500	50	10516 $3_{1/2}$ —31406 $2_{1/2}$
4787.589	20881.50	40	2	23957 $3_{1/2}$ —44839 $3_{1/2}$
4787.758	20880.76	100	8	21719 $5_{1/2}$ —42600 $5_{1/2}$
4790.482	20868.89	200 <i>c</i>	20 <i>c</i>	20231 $1_{1/2}$ —41100 $2_{1/2}$
4791.623	20863.92	250	20	11063 $2_{1/2}$ —31927 $2_{1/2}$
4792.120	20861.75	5	1	21752 $3_{1/2}$ —42613 $4_{1/2}$
4796.176	20844.11	3		27940 $2_{1/2}$ —48784 $3_{1/2}$
4796.480	20842.79	10	1	20686 $2_{1/2}$ —41529 $3_{1/2}$
4797.895	20836.64	6 <i>h</i>		23265 $3_{1/2}$ —44102 $3_{1/2}$
4799.978	20827.60	300	30	21204 $4_{1/2}$ —42032 $5_{1/2}$
4800.700	20824.47	80 <i>c</i>	5 <i>c</i>	11578 $1_{1/2}$ —32403 $0_{1/2}$
4803.623	20811.80	2		22265 $2_{1/2}$ —43077 $3_{1/2}$
4804.777	20806.80	1 <i>h</i>		23460 $3_{1/2}$ —44266 $3_{1/2}$
4805.688	20802.86	100	10	27660 $3_{1/2}$ —48462 $3_{1/2}$
4807.349	20795.67	8	1	21450 $4_{1/2}$ —42246 $3_{1/2}$
4807.988	20792.91	1 <i>h</i>		28151 $1_{1/2}$ —48944 $2_{1/2}$
4809.094	20788.12	1		21204 $4_{1/2}$ —41993 $3_{1/2}$
4809.416	20786.73	100	10	21206 $2_{1/2}$ —41993 $3_{1/2}$
4810.633	20781.47	2		23460 $3_{1/2}$ —44241 $2_{1/2}$
4811.842	20776.25	60	6	21920 $2_{1/2}$ —42696 $2_{1/2}$
4812.630	20772.85	3		14169 $1_{1/2}$ —34942 $1_{1/2}$
4813.324	20769.85	50	5	21447 $1_{1/2}$ —42217 $4_{1/2}$
4814.073	20766.62	60	6	21450 $4_{1/2}$ —42217 $4_{1/2}$
4816.062	20758.05	30 <i>c</i>	1	27660 $3_{1/2}$ —48418 $4_{1/2}$
4816.794	20754.89	500	80	21719 $5_{1/2}$ —42474 $6_{1/2}$
4819.024	20745.29	1 <i>h</i>		20783 $3_{1/2}$ —41529 $3_{1/2}$
4820.739	20737.91	10000	000	16874 $3_{1/2}$ —37612 $3_{1/2}$
4825.748	20716.38	20	2	21206 $2_{1/2}$ —41922 $2_{1/2}$
4828.698	20703.73	2		20384 $3_{1/2}$ —41088 $3_{1/2}$
4831.347	20692.38	300	30	2572 $4_{1/2}$ —23265 $3_{1/2}$
4834.367	20679.45	1000	100	11578 $1_{1/2}$ —32258 $1_{1/2}$
4835.394	20675.06	1000	100	11578 $1_{1/2}$ —32253 $1_{1/2}$
4838.034	20663.77	1		26788 $2_{1/2}$ —47452 $2_{1/2}$
4839.017	20659.58	1		43267 $3_{1/2}$ —63926 $2_{1/2}$
4840.974	20651.23	20	2	22615 $3_{1/2}$ —43267 $3_{1/2}$

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4841.364	20649.56	100	10	22615 <sub>3/2</sub> —43265 <sub>4/2</sub> <sup>o</sup>
4842.022	20646.76	10 <i>h</i>	1 <i>h</i>	23455 <sub>2/2</sub> —44102 <sub>3/2</sub>
4843.559	20640.20	6	1	22265 <sub>2/2</sub> —42905 <sub>2/2</sub> <sup>o</sup>
4844.326	20636.94	2		22180 <sub>4/2</sub> —42817 <sub>4/2</sub> <sup>o</sup>
4848.716	20618.25	3		23957 <sub>3/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
4849.608	20614.46	40	2	19791 <sub>4/2</sub> —40406 <sub>3/2</sub> <sup>o</sup>
4850.368	20611.23	4		19791 <sub>4/2</sub> —40403 <sub>4/2</sub> <sup>o</sup>
4853.588	20597.56	20000	2000	10516 <sub>3/2</sub> —31114 <sub>4/2</sub> <sup>o</sup>
4855.343	20590.11	1		20231 <sub>1/2</sub> —40821 <sub>2/2</sub> <sup>o</sup>
4857.211	20582.19	100	10	21450 <sub>4/2</sub> —42032 <sub>5/2</sub> <sup>o</sup>
4858.446	20576.96	2		20523 <sub>2/2</sub> —41100 <sub>2/2</sub> <sup>o</sup>
4859.216	20573.70	40 <i>c</i>	2 <i>c</i>	23455 <sub>2/2</sub> —44028 <sub>1/2</sub>
4860.424	20568.59	1		26883 <sub>2/2</sub> —47452 <sub>2/2</sub> <sup>o</sup>
4861.232	20565.17	20	2	20523 <sub>2/2</sub> —41088 <sub>3/2</sub> <sup>o</sup>
4862.193	20561.10	100 <i>c</i>	8 <i>c</i>	23588 <sub>1/2</sub> —44149 <sub>0/2</sub>
4862.931	20557.98	40	4	21206 <sub>2/2</sub> —41764 <sub>2/2</sub> <sup>o</sup>
4866.733	20541.92	10000	1000	11063 <sub>2/2</sub> —31605 <sub>3/2</sub> <sup>o</sup>
4869.240	20531.35	3 <i>c</i>		23265 <sub>3/2</sub> —43796 <sub>2/2</sub> <sup>o</sup>
4870.772	20524.89	200	20	21204 <sub>4/2</sub> —41729 <sub>3/2</sub> <sup>o</sup>
4873.799	20512.14	10 <i>c</i>		11890 <sub>0/2</sub> —32403 <sub>0/2</sub> <sup>o</sup>
4874.768	20508.06	30	1	22503 <sub>1/2</sub> —43011 <sub>2/2</sub> <sup>o</sup>
4875.142	20506.49	1		22265 <sub>2/2</sub> —42771 <sub>3/2</sub> <sup>o</sup>
4876.768	20499.65	12 <i>c</i>	1	19903 <sub>3/2</sub> —40403 <sub>4/2</sub> <sup>o</sup>
4877.016	20498.61	30	3	21204 <sub>4/2</sub> —41703 <sub>4/2</sub> <sup>o</sup>
4877.344	20497.23	15	2	21719 <sub>5/2</sub> —42217 <sub>4/2</sub> <sup>o</sup>
4878.094	20494.08	12	1	21752 <sub>3/2</sub> —42246 <sub>3/2</sub> <sup>o</sup>
4882.586	20475.23	8	1	21447 <sub>1/2</sub> —41922 <sub>2/2</sub> <sup>o</sup>
4885.044	20464.93	30	3	21752 <sub>3/2</sub> —42217 <sub>4/2</sub> <sup>o</sup>
4885.889	20461.39	12	1	22615 <sub>3/2</sub> —43077 <sub>3/2</sub> <sup>o</sup>
4888.695	20449.64	100	10	19791 <sub>4/2</sub> —40241 <sub>4/2</sub> <sup>o</sup>
4889.444	20446.51	50	5	21450 <sub>4/2</sub> —41897 <sub>4/2</sub> <sup>o</sup>
4890.884	20440.49	150 <i>c</i>	10 <i>c</i>	23588 <sub>1/2</sub> —44028 <sub>1/2</sub>
4890.884	20440.49	150 <i>c</i>	10 <i>c</i>	11063 <sub>2/2</sub> —31503 <sub>1/2</sub> <sup>o</sup>
4891.918	20436.17	8000	800	11578 <sub>1/2</sub> —32014 <sub>2/2</sub> <sup>o</sup>
4892.490	20433.78	150	15	22180 <sub>4/2</sub> —42613 <sub>4/2</sub> <sup>o</sup>
4893.153	20431.01	1 <i>h</i>		22265 <sub>2/2</sub> —42696 <sub>2/2</sub> <sup>o</sup>
4893.651	20428.93	10 <i>c</i>	1 <i>c</i>	24147 <sub>4/2</sub> —44576 <sub>4/2</sub> <sup>o</sup>
4895.977	20419.23	2		21206 <sub>2/2</sub> —41625 <sub>1/2</sub> <sup>o</sup>
4897.251	20413.91	8	1	20686 <sub>2/2</sub> —41100 <sub>2/2</sub> <sup>o</sup>
4900.046	20402.27	30	3	20686 <sub>2/2</sub> —41088 <sub>3/2</sub> <sup>o</sup>
4900.955	20398.49	10	1	22503 <sub>1/2</sub> —42901 <sub>1/2</sub> <sup>o</sup>
4902.085	20393.78	1		19702 <sub>1/2</sub> —40096 <sub>1/2</sub> <sup>o</sup>
4903.747	20386.87	2		20686 <sub>2/2</sub> —41073 <sub>1/2</sub> <sup>o</sup>
4906.410	20375.81	50	5	21204 <sub>4/2</sub> —41580 <sub>5/2</sub> <sup>o</sup>
4906.791	20374.23	10	1	21920 <sub>2/2</sub> —42294 <sub>2/2</sub> <sup>o</sup>
4908.509	20367.09	1000	100	11890 <sub>0/2</sub> —32258 <sub>1/2</sub> <sup>o</sup>
4909.053	20364.84	5	1	22180 <sub>4/2</sub> —42545 <sub>4/2</sub> <sup>o</sup>
4909.566	20362.71	2000	200	11890 <sub>0/2</sub> —32253 <sub>1/2</sub> <sup>o</sup>
4912.422	20350.87	5 <i>c</i>		11063 <sub>2/2</sub> —31414 <sub>3/2</sub> <sup>o</sup>
4913.020	20348.39	500	50	11578 <sub>1/2</sub> —31927 <sub>2/2</sub> <sup>o</sup>



TABLE 3. Classified lines of Tc 1

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
4914.166	20343.65	10	1	11063 <sub>2 1/2</sub> —31406 <sub>2 1/2</sub>
4914.699	20341.44	150 <i>c</i>	15 <i>c</i>	23455 <sub>2 1/2</sub> <sup>o</sup> —43796 <sub>2 1/2</sub>
4918.917	20324.00	3		21204 <sub>4 1/2</sub> —41529 <sub>3 1/2</sub>
4918.917	20324.00	3		21926 <sub>2 1/2</sub> —42250 <sub>2 1/2</sub>
4919.229	20322.71	5		21206 <sub>2 1/2</sub> —41529 <sub>3 1/2</sub>
4920.668	20316.77	200 <i>c l</i>	20 <i>c</i>	21447 <sub>1 1/2</sub> —41764 <sub>2 1/2</sub>
4921.646	20312.73	20	2	21719 <sub>5 1/2</sub> —42032 <sub>5 1/2</sub>
4923.601	20304.67	300	3	20783 <sub>3 1/2</sub> —41088 <sub>3 1/2</sub>
4925.412	20297.20	2		21920 <sub>2 1/2</sub> —42217 <sub>1 1/2</sub>
4927.031	20290.53	5	1	21926 <sub>2 1/2</sub> —42217 <sub>1 1/2</sub>
4928.676	20283.76	3		23957 <sub>3 1/2</sub> —44241 <sub>2 1/2</sub>
4929.749	20279.34	25	2	21450 <sub>4 1/2</sub> —41729 <sub>3 1/2</sub>
4930.360	20276.83	20	2	29539 <sub>4 1/2</sub> —49815 <sub>4 1/2</sub>
4930.904	20274.59	15		19702 <sub>1 1/2</sub> —39977 <sub>2 1/2</sub>
4933.430	20264.21	10		22180 <sub>4 1/2</sub> —42444 <sub>5 1/2</sub>
4933.798	20262.70	25 <i>c</i>	2	14679 <sub>0 1/2</sub> —34942 <sub>1 1/2</sub>
4936.132	20253.12	40	3	21450 <sub>4 1/2</sub> —41703 <sub>4 1/2</sub>
4939.112	20240.90	2		21752 <sub>3 1/2</sub> —41993 <sub>3 1/2</sub>
4947.078	20208.31	50 <i>c</i>	5 <i>c</i>	23588 <sub>1 1/2</sub> —43796 <sub>2 1/2</sub>
4948.064	20204.28	400	40	3250 <sub>3 1/2</sub> —23455 <sub>2 1/2</sub>
4948.839	20201.12	20	2	19895 <sub>2 1/2</sub> —40096 <sub>1 1/2</sub>
4950.743	20193.35	2		22503 <sub>1 1/2</sub> —42696 <sub>2 1/2</sub>
4953.351	20182.72	1 <i>h</i>		21920 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub>
4954.508	20178.00	2 <i>h</i>		21447 <sub>1 1/2</sub> —41625 <sub>1 1/2</sub>
4954.713	20177.17	10	1	21719 <sub>5 1/2</sub> —41897 <sub>4 1/2</sub>
4954.985	20176.06	20	2	21926 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub>
4956.337	20170.56	40	4	21752 <sub>3 1/2</sub> —41922 <sub>2 1/2</sub>
4959.942	20155.90	4		22615 <sub>3 1/2</sub> —42771 <sub>3 1/2</sub>
4961.532	20149.44	1		23957 <sub>3 1/2</sub> —44107 <sub>2 1/2</sub>
4962.654	20144.88	10	1	21752 <sub>3 1/2</sub> —41896 <sub>4 1/2</sub>
4966.255	20130.28	10	1	21450 <sub>4 1/2</sub> —41580 <sub>5 1/2</sub>
4966.255	20130.28	10	1	39185 <sub>4 1/2</sub> <sup>o</sup> —59315 <sub>5 1/2</sub>
4967.200	20126.45	60 <i>cw</i>	6	23265 <sub>3 1/2</sub> <sup>o</sup> —43391 <sub>3 1/2</sub>
4968.854	20119.75	5 <i>c</i>		24147 <sub>4 1/2</sub> —44266 <sub>3 1/2</sub>
4976.340	20089.48	5000	500	17522 <sub>4 1/2</sub> <sup>o</sup> —37612 <sub>3 1/2</sub>
4978.569	20080.49	20	2	22615 <sub>3 1/2</sub> —42696 <sub>2 1/2</sub>
4979.028	20078.64	8	1	21450 <sub>4 1/2</sub> —41529 <sub>3 1/2</sub>
4980.214	20073.85	3		19903 <sub>3 1/2</sub> —39977 <sub>2 1/2</sub>
4980.448	20072.91	50	4	21920 <sub>2 1/2</sub> —41993 <sub>3 1/2</sub>
4991.346	20029.08	1 <i>h</i>		22265 <sub>2 1/2</sub> —42294 <sub>2 1/2</sub>
4993.978	20018.53	80 <i>c</i>		20384 <sub>3 1/2</sub> —40403 <sub>4 1/2</sub>
4994.997	20014.44	400	40	3250 <sub>3 1/2</sub> —23265 <sub>3 1/2</sub>
4999.120	19997.94	30	2	22615 <sub>3 1/2</sub> —42613 <sub>4 1/2</sub>
5000.831	19991.10	50 <i>c</i>	3	24147 <sub>4 1/2</sub> —44138 <sub>5 1/2</sub>
5002.674	19983.73	200	20	21719 <sub>5 1/2</sub> —41703 <sub>4 1/2</sub>
5003.405	19980.81	2		22265 <sub>2 1/2</sub> —42246 <sub>3 1/2</sub>
5005.737	19971.50	100	5	19791 <sub>4 1/2</sub> —39763 <sub>4 1/2</sub>
5010.766	19951.46	30	2	21752 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub>
5014.517	19936.53	200 <i>cw</i>	20 <i>cw</i>	23455 <sub>2 1/2</sub> <sup>o</sup> —43391 <sub>3 1/2</sub>
5017.324	19925.38	1 <i>h</i>		11578 <sub>1 1/2</sub> —31503 <sub>1 1/2</sub>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5026.793	19887.85	300	30	3700 <sub>2 1/2</sub> —23588 <sup>a</sup> <sub>1 1/2</sub>
5027.894	19883.49	150	15	21204 <sub>4 1/2</sub> —41088 <sup>a</sup> <sub>3 1/2</sub>
5031.663	19868.60	4		21920 <sub>2 1/2</sub> —41788 <sup>a</sup> <sub>1 1/2</sub>
5032.107	19866.85	10	1	21206 <sub>2 1/2</sub> —41073 <sup>a</sup> <sub>1 1/2</sub>
5032.446	19865.51	80	8	10516 <sub>3 1/2</sub> —30382 <sup>a</sup> <sub>3 1/2</sub>
5033.613	19860.90	5	1	21719 <sub>5 1/2</sub> —41580 <sup>a</sup> <sub>5 1/2</sub>
5035.760	19852.44	3		22180 <sub>4 1/2</sub> —42032 <sup>a</sup> <sub>5 1/2</sub>
5036.002	19851.48	4		20384 <sub>3 1/2</sub> —40236 <sup>a</sup> <sub>3 1/2</sub>
5036.833	19848.21	5	1	27971 <sub>4 1/2</sub> —47819 <sup>a</sup> <sub>4 1/2</sub>
5039.572	19837.42	10	1	22265 <sub>2 1/2</sub> —42102 <sup>a</sup> <sub>2 1/2</sub>
5041.905	19828.24	1 <i>h</i>		11578 <sub>1 1/2</sub> —31406 <sup>a</sup> <sub>2 1/2</sub>
5043.699	19821.19	2		42217 <sup>a</sup> <sub>4 1/2</sub> —62038 <sub>3 1/2</sub>
5045.580	19813.80	2 <i>h</i>		25058 <sub>3 1/2</sub> —44872 <sup>a</sup> <sub>2 1/2</sub>
5046.622	19809.71	3 <i>h</i>		21920 <sub>2 1/2</sub> —41729 <sup>a</sup> <sub>3 1/2</sub>
5051.303	19791.35	40	4	22503 <sub>1 1/2</sub> —42294 <sup>a</sup> <sub>2 1/2</sub>
5055.274	19775.80	300	30	19791 <sub>4 1/2</sub> —39567 <sup>a</sup> <sub>3 1/2</sub>
5058.331	19763.85	60	6	20639 <sub>5 1/2</sub> —40403 <sup>a</sup> <sub>4 1/2</sub>
5060.686	19754.65	500	50	3700 <sub>2 1/2</sub> —23455 <sup>a</sup> <sub>2 1/2</sub>
5062.136	19749.00	2		19827 <sub>0 1/2</sub> —39576 <sup>a</sup> <sub>1 1/2</sub>
5067.632	19727.58	1		22265 <sub>2 1/2</sub> —41993 <sup>a</sup> <sub>3 1/2</sub>
5069.549	19720.12	50	5	20686 <sub>2 1/2</sub> —40406 <sup>a</sup> <sub>3 1/2</sub>
5070.378	19716.89	4		22180 <sub>4 1/2</sub> —41897 <sup>a</sup> <sub>4 1/2</sub>
5074.051	19702.62	3		25174 <sub>2 1/2</sub> —44876 <sup>a</sup> <sub>1 1/2</sub>
5075.184	19698.22	10	1	25174 <sub>2 1/2</sub> —44872 <sup>a</sup> <sub>2 1/2</sub>
5079.561	19681.25	2		19895 <sub>2 1/2</sub> —39576 <sup>a</sup> <sub>1 1/2</sub>
5080.268	19678.51	1 <i>h</i>		22615 <sub>3 1/2</sub> —42294 <sup>a</sup> <sub>2 1/2</sub>
5081.860	19672.35	3		19895 <sub>2 1/2</sub> —39567 <sup>a</sup> <sub>3 1/2</sub>
5083.969	19664.19	30	3	19903 <sub>3 1/2</sub> —39567 <sup>a</sup> <sub>3 1/2</sub>
5085.611	19657.84	2		26950 <sub>3 1/2</sub> —46608 <sup>a</sup> <sub>3 1/2</sub>
5086.922	19652.77	40	4	21447 <sub>1 1/2</sub> —41100 <sup>a</sup> <sub>2 1/2</sub>
5088.200	19647.84	1		29233 <sub>3 1/2</sub> —48881 <sup>a</sup> <sub>4 1/2</sub>
5090.743	19638.02	80	8	21450 <sub>4 1/2</sub> —41088 <sup>a</sup> <sub>3 1/2</sub>
5093.182	19628.62	10	1	25058 <sub>3 1/2</sub> —44687 <sup>a</sup> <sub>3 1/2</sub>
5095.575	19619.40	2		20783 <sub>3 1/2</sub> —40403 <sup>a</sup> <sub>4 1/2</sub>
5096.280	19616.68	5000	500	10516 <sub>3 1/2</sub> —30133 <sup>a</sup> <sub>4 1/2</sub>
5100.033	19602.25	6	1	20639 <sub>5 1/2</sub> —40241 <sup>a</sup> <sub>5 1/2</sub>
5100.327	19601.12	3	1	22615 <sub>3 1/2</sub> —42217 <sup>a</sup> <sub>4 1/2</sub>
5102.525	19592.68	30	3	20384 <sub>3 1/2</sub> —39977 <sup>a</sup> <sub>2 1/2</sub>
5103.240	19589.93	200 <i>c</i>	20 <i>c</i>	23265 <sub>3 1/2</sub> —42855 <sub>4 1/2</sub>
5103.531	19588.81	10	1	23957 <sub>3 1/2</sub> —43546 <sup>a</sup> <sub>2 1/2</sub>
5104.321	19585.78	500	50	4002 <sub>1 1/2</sub> —23588 <sup>a</sup> <sub>1 1/2</sub>
5107.581	19573.28	8	1	20523 <sub>2 1/2</sub> —40096 <sup>a</sup> <sub>1 1/2</sub>
5109.079	19567.54	4	1	11063 <sub>2 1/2</sub> —30630 <sup>a</sup> <sub>1 1/2</sub>
5109.809	19564.75	200	20	3700 <sub>2 1/2</sub> —23265 <sup>a</sup> <sub>3 1/2</sub>
5111.113	19559.76	1		29539 <sub>4 1/2</sub> —49098 <sup>a</sup> <sub>4 1/2</sub>
5112.019	19556.29	3		19903 <sub>3 1/2</sub> —39459 <sup>a</sup> <sub>2 1/2</sub>
5113.370	19551.12	5		23460 <sub>3 1/2</sub> —43011 <sup>a</sup> <sub>2 1/2</sub>
5113.686	19549.91	30	3	22180 <sub>4 1/2</sub> —41729 <sup>a</sup> <sub>3 1/2</sub>
5120.605	19523.50	100	10	22180 <sub>4 1/2</sub> —41703 <sup>a</sup> <sub>4 1/2</sub>
5122.180	19517.49	20	2	25058 <sub>3 1/2</sub> —44576 <sup>a</sup> <sub>4 1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5122.739	19515.36	6	1	20783 <sub>3/2</sub> —40299 <sub>2/2</sub>
5125.158	19506.15	6 <i>c</i>	1 <i>c</i>	15770 <sub>1/2</sub> —35276 <sub>0/2</sub>
5130.260	19486.76	1 <i>h</i>		22615 <sub>3/2</sub> —42102 <sub>2/2</sub>
5135.789	19465.78	6	1	11063 <sub>2/2</sub> —30528 <sub>2/2</sub>
5136.156	19464.39	40	4	22265 <sub>2/2</sub> —41729 <sub>3/2</sub>
5138.886	19454.05	3		20523 <sub>2/2</sub> —39977 <sub>2/2</sub>
5139.262	19452.62	500	50	4002 <sub>1/2</sub> —23455 <sub>2/2</sub>
5141.227	19445.19	1		26950 <sub>3/2</sub> —46396 <sub>3/2</sub>
5147.997	19419.62	4		22503 <sub>1/2</sub> —41922 <sub>2/2</sub>
5150.630	19409.69	500	50	4178 <sub>0/2</sub> —23588 <sub>1/2</sub>
5157.991	19381.99	10	1	21447 <sub>1/2</sub> —40829 <sub>0/2</sub>
5158.858	19378.73	30 <i>c</i>	3 <i>c</i>	20384 <sub>3/2</sub> —39763 <sub>4/2</sub>
5160.130	19373.96	1		28839 <sub>5/2</sub> —48213 <sub>0/2</sub>
5161.810	19367.65	2000	200	13252 <sub>2/2</sub> —32620 <sub>3/2</sub>
5161.810	19367.65	2000	200	20523 <sub>2/2</sub> —39891 <sub>2/2</sub>
5162.410	19365.40	5 <i>h</i>		24147 <sub>4/2</sub> —43512 <sub>5/2</sub>
5167.038	19348.05	1		21752 <sub>3/2</sub> —41100 <sub>2/2</sub>
5167.774	19345.30	8	1	20231 <sub>1/2</sub> —39576 <sub>1/2</sub>
5168.470	19342.69	2		29539 <sub>4/2</sub> —48881 <sub>4/2</sub>
5174.812	19318.99	2000	200	11063 <sub>2/2</sub> —30382 <sub>3/2</sub>
5177.018	19310.76	2		14169 <sub>1/2</sub> —33480 <sub>0/2</sub>
5177.387	19309.38	3		23957 <sub>3/2</sub> —43267 <sub>3/2</sub>
5177.746	19308.04	10 <i>c</i>		30630 <sub>1/2</sub> —49938 <sub>2/2</sub>
5178.104	19306.71	10		22615 <sub>3/2</sub> —41922 <sub>2/2</sub>
5181.930	19292.45	2 <i>h s</i>		24564 <sub>5/2</sub> —43857 <sub>6/2</sub>
5183.999	19284.75	50	2	30528 <sub>2/2</sub> —49813 <sub>2/2</sub>
5184.994	19281.05	10	1	22615 <sub>3/2</sub> —41896 <sub>4/2</sub>
5189.687	19263.62	40	4	22265 <sub>2/2</sub> —41529 <sub>3/2</sub>
5202.152	19217.46	10 <i>cw</i>		15298 <sub>3/2</sub> —34515 <sub>2/2</sub>
5206.862	19200.07	10		21206 <sub>2/2</sub> —40406 <sub>3/2</sub>
5207.358	19198.25	4		21204 <sub>4/2</sub> —40403 <sub>4/2</sub>
5208.623	19193.58	25		20783 <sub>3/2</sub> —39977 <sub>2/2</sub>
5211.262	19183.86	6		30382 <sub>3/2</sub> —49565 <sub>2/2</sub>
5211.477	19183.07	6		30630 <sub>1/2</sub> —49813 <sub>2/2</sub>
5214.087	19173.47	20	4	14169 <sub>1/2</sub> —33343 <sub>1/2</sub>
5220.239	19150.87	15	3	26917 <sub>5/2</sub> —46068 <sub>4/2</sub>
5221.447	19146.44	10	1	21926 <sub>2/2</sub> —41073 <sub>1/2</sub>
5223.517	19138.86	2		27517 <sub>2/2</sub> —46656 <sub>3/2</sub>
5225.360	19132.11	10	1	25405 <sub>1/2</sub> —44537 <sub>2/2</sub>
5228.648	19120.08	40 <i>cw</i>	4 <i>cw</i>	24147 <sub>4/2</sub> —43267 <sub>3/2</sub>
5228.756	19119.68	10		23957 <sub>3/2</sub> —43077 <sub>3/2</sub>
5230.342	19113.88	12	1	22615 <sub>3/2</sub> —41729 <sub>3/2</sub>
5231.268	19110.50	15	1	11578 <sub>1/2</sub> —30689 <sub>0/2</sub>
5232.164	19107.23	5	1	20783 <sub>3/2</sub> —39891 <sub>2/2</sub>
5232.929	19104.43	1 <i>h</i>		30630 <sub>1/2</sub> —49735 <sub>1/2</sub>
5236.130	19092.75	7	1	25174 <sub>2/2</sub> —44266 <sub>3/2</sub>
5236.452	19091.58	5	1	27517 <sub>2/2</sub> —46608 <sub>3/2</sub>
5237.180	19088.93	2		25598 <sub>2/2</sub> —44687 <sub>3/2</sub>
5237.521	19087.68	2		22615 <sub>3/2</sub> —41703 <sub>4/2</sub>
5238.247	19085.04	1		24564 <sub>5/2</sub> —43649 <sub>4/2</sub>

TABLE 3. Classified lines of Tc 1

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5240.953	19075.19	20 <i>c</i>	2 <i>c</i>	20384 <sub>3/2</sub> —39459 <sub>2/2</sub>
5242.641	19069.04	2		21752 <sub>3/2</sub> —40821 <sub>2/2</sub>
5243.094	19067.40	2		25174 <sub>2/2</sub> —44241 <sub>2/2</sub>
5247.006	19053.18	20	2	20523 <sub>2/2</sub> —39576 <sub>1/2</sub>
5249.428	19044.39	20 <i>c</i>	2	20523 <sub>2/2</sub> —39567 <sub>3/2</sub>
5249.428	19044.39	20 <i>c</i>	2	30528 <sub>2/2</sub> —49573 <sub>3/2</sub>
5251.421	19037.16	40 <i>c</i>	3 <i>c</i>	30528 <sub>2/2</sub> —49565 <sub>2/2</sub>
5253.052	19031.25	5		21204 <sub>4/2</sub> —40236 <sub>3/2</sub>
5253.421	19029.91	6		21206 <sub>2/2</sub> —40236 <sub>3/2</sub>
5254.762	19025.06	20 <i>c</i>	2 <i>c</i>	24147 <sub>4/2</sub> —43172 <sub>5/2</sub>
5260.217	19005.33	200 <i>cw</i>	20 <i>c</i>	13252 <sub>2/2</sub> —32258 <sub>1/2</sub>
5261.444	19000.90	200 <i>c</i>	20 <i>c</i>	13252 <sub>2/2</sub> —32253 <sub>1/2</sub>
5267.350	18979.59	3		20783 <sub>3/2</sub> —39763 <sub>4/2</sub>
5273.930	18955.91	15	2	21450 <sub>4/2</sub> —40406 <sub>3/2</sub>
5274.824	18952.70	50	5	21450 <sub>4/2</sub> —40403 <sub>4/2</sub>
5275.512	18950.23	1000	100	11578 <sub>1/2</sub> —30528 <sub>2/2</sub>
5279.330	18936.52	30 <i>c</i>	2 <i>c</i>	20523 <sub>2/2</sub> —39459 <sub>2/2</sub>
5281.101	18930.17	20 <i>c</i>	1 <i>c</i>	24147 <sub>4/2</sub> —43077 <sub>3/2</sub>
5285.067	18915.97	800	80	14169 <sub>1/2</sub> —33085 <sub>2/2</sub>
5285.838	18913.21	8	1	22615 <sub>3/2</sub> —41529 <sub>3/2</sub>
5291.060	18894.54	2 <i>h</i>		21926 <sub>2/2</sub> —40821 <sub>2/2</sub>
5291.905	18891.53	3 <i>h</i>		15624 <sub>2/2</sub> —34515 <sub>2/2</sub>
5292.263	18890.25	30 <i>c</i>	3 <i>c</i>	20686 <sub>2/2</sub> —39576 <sub>1/2</sub>
5292.263	18890.25	30 <i>c</i>	3 <i>c</i>	21206 <sub>2/2</sub> —40096 <sub>1/2</sub>
5299.669	18863.85	20	1	30382 <sub>3/2</sub> —49245 <sub>3/2</sub>
5305.307	18843.80	100	6	30133 <sub>4/2</sub> —48977 <sub>4/2</sub>
5307.558	18835.81	5		25405 <sub>1/2</sub> —44241 <sub>2/2</sub>
5307.875	18834.69	1		22265 <sub>2/2</sub> —41100 <sub>2/2</sub>
5311.163	18823.03	10	1	22265 <sub>2/2</sub> —41088 <sub>3/2</sub>
5313.696	18814.05	1 <i>h</i>		23957 <sub>3/2</sub> —42771 <sub>3/2</sub>
5317.509	18800.56	30 <i>c</i>	3 <i>c</i>	14679 <sub>0/2</sub> —33480 <sub>0/2</sub>
5318.186	18798.17	15 <i>c</i>	1 <i>c</i>	11890 <sub>0/2</sub> —30689 <sub>0/2</sub>
5320.198	18791.06	600	60	21450 <sub>4/2</sub> —40241 <sub>5/2</sub>
5325.132	18773.65	5		20686 <sub>2/2</sub> —39459 <sub>2/2</sub>
5325.848	18771.13	4		21206 <sub>2/2</sub> —39977 <sub>2/2</sub>
5328.406	18762.12	10	1	13252 <sub>2/2</sub> —32014 <sub>2/2</sub>
5329.620	18757.84	4		26950 <sub>3/2</sub> —45708 <sub>4/2</sub>
5332.201	18748.76	2		29539 <sub>4/2</sub> —48287 <sub>5/2</sub>
5334.790	18739.66	200	20	11890 <sub>0/2</sub> —30630 <sub>1/2</sub>
5335.080	18738.64	6	1	23957 <sub>3/2</sub> —42696 <sub>2/2</sub>
5337.066	18731.67	5	1	25174 <sub>2/2</sub> —43905 <sub>3/2</sub>
5345.690	18701.45	8		25405 <sub>1/2</sub> —44107 <sub>2/2</sub>
5345.890	18700.75	15 <i>c</i>	1 <i>c</i>	24564 <sub>5/2</sub> —43265 <sub>4/2</sub>
5350.498	18684.65	4		21206 <sub>2/2</sub> —39891 <sub>2/2</sub>
5350.873	18683.34	15		21719 <sub>5/2</sub> —40403 <sub>4/2</sub>
5353.480	18674.24	500 <i>cw</i>	50 <i>cw</i>	13252 <sub>2/2</sub> —31927 <sub>2/2</sub>
5355.110	18668.56	6	1	25598 <sub>2/2</sub> —44266 <sub>3/2</sub>
5356.634	18663.25	200	20	14679 <sub>0/2</sub> —33343 <sub>1/2</sub>
5358.646	18656.24	300	30	23957 <sub>3/2</sub> —42613 <sub>4/2</sub>
5359.222	18654.23	40	4	21752 <sub>3/2</sub> —40406 <sub>3/2</sub>

TABLE 3. *Classified lines of Tc 1*

Wavelength A	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5360.142	18651.03	200	20	21752 <sub>3/2</sub> —40403 <sub>4/2</sub> <sup>a</sup>
5360.690	18649.12	15	1	21447 <sub>1/2</sub> —40096 <sub>1/2</sub> <sup>a</sup>
5362.420	18643.11	4wd		21206 <sub>2/2</sub> —39849 <sub>3/2</sub> <sup>a</sup>
5364.050	18637.44	20	2	27971 <sub>4/2</sub> —46608 <sub>3/2</sub> <sup>a</sup>
5366.082	18630.39	10	1	29233 <sub>3/2</sub> —47864 <sub>3/2</sub> <sup>a</sup>
5367.090	18626.89	2		24147 <sub>4/2</sub> —42773 <sub>5/2</sub> <sup>a</sup>
5372.719	18607.37	1h		24564 <sub>5/2</sub> —43172 <sub>5/2</sub> <sup>a</sup>
5376.298	18594.98	10h	1h	30382 <sub>3/2</sub> —48977 <sub>4/2</sub> <sup>a</sup>
5377.414	18591.13	20	2	25058 <sub>3/2</sub> —43649 <sub>4/2</sub> <sup>a</sup>
5378.457	18587.52	2	1	27517 <sub>2/2</sub> —46104 <sub>2/2</sub> <sup>a</sup>
5378.970	18585.75	1h		29233 <sub>3/2</sub> —47819 <sub>4/2</sub> <sup>a</sup>
5383.509	18570.08	30c	2c	22503 <sub>1/2</sub> —41073 <sub>1/2</sub> <sup>a</sup>
5385.832	18562.07	10h		30382 <sub>3/2</sub> —48944 <sub>2/2</sub> <sup>a</sup>
5386.872	18558.48	10	1	21204 <sub>4/2</sub> —39763 <sub>4/2</sub> <sup>a</sup>
5387.630	18555.87	6h		22265 <sub>2/2</sub> —40821 <sub>2/2</sub> <sup>a</sup>
5390.214	18546.98	1		21752 <sub>3/2</sub> —40299 <sub>2/2</sub> <sup>a</sup>
5394.569	18532.00	3h		31406 <sub>2/2</sub> —49938 <sub>2/2</sub> <sup>a</sup>
5395.149	18530.01	1		21447 <sub>1/2</sub> —39977 <sub>2/2</sub> <sup>a</sup>
5395.149	18530.01	1		43971 <sub>4/2</sub> —62501 <sub>3/2</sub> <sup>a</sup>
5396.690	18524.72	2		31414 <sub>3/2</sub> —49938 <sub>2/2</sub> <sup>a</sup>
5397.539	18521.81	5		21719 <sub>5/2</sub> —40241 <sub>5/2</sub> <sup>a</sup>
5400.480	18511.72	20		25598 <sub>2/2</sub> —44110 <sub>1/2</sub> <sup>a</sup>
5407.910	18486.29	50c	3c	21920 <sub>2/2</sub> —40406 <sub>3/2</sub> <sup>a</sup>
5411.928	18472.56	20	1	22615 <sub>3/2</sub> —41088 <sub>3/2</sub> <sup>a</sup>
5413.624	18466.78	2h		24147 <sub>4/2</sub> —42613 <sub>4/2</sub> <sup>a</sup>
5417.121	18454.86	3		28839 <sub>5/2</sub> —47294 <sub>5/2</sub> <sup>a</sup>
5418.934	18448.68	2h		19791 <sub>4/2</sub> —38240 <sub>3/2</sub> <sup>a</sup>
5422.382	18436.95	2		23460 <sub>3/2</sub> —41896 <sub>4/2</sub> <sup>a</sup>
5423.048	18434.69	150c	15c	31503 <sub>1/2</sub> —49938 <sub>2/2</sub> <sup>a</sup>
5425.956	18424.81	6	1	27971 <sub>4/2</sub> —46396 <sub>3/2</sub> <sup>a</sup>
5430.712	18408.67	2		25598 <sub>2/2</sub> —44007 <sub>2/2</sub> <sup>a</sup>
5431.246	18406.86	15h	1	31406 <sub>2/2</sub> —49813 <sub>2/2</sub> <sup>a</sup>
5432.437	18402.83	5		30382 <sub>3/2</sub> —48784 <sub>3/2</sub> <sup>a</sup>
5433.894	18397.89	1		24147 <sub>4/2</sub> —42545 <sub>4/2</sub> <sup>a</sup>
5438.774	18381.38	2h		20384 <sub>3/2</sub> —38766 <sub>3/2</sub> <sup>a</sup>
5441.440	18372.38	2		21926 <sub>2/2</sub> —40299 <sub>2/2</sub> <sup>a</sup>
5441.440	18372.38	2		25174 <sub>2/2</sub> —43546 <sub>2/2</sub> <sup>a</sup>
5442.071	18370.25	4cw		21206 <sub>2/2</sub> —39576 <sub>1/2</sub> <sup>a</sup>
5444.258	18362.87	50	5	21204 <sub>4/2</sub> —39567 <sub>3/2</sub> <sup>a</sup>
5447.402	18352.27	200	20	13252 <sub>2/2</sub> —31605 <sub>3/2</sub> <sup>a</sup>
5447.800	18350.93	20c		30067 <sub>5/2</sub> —48418 <sub>4/2</sub> <sup>a</sup>
5451.900	18337.13	500c	50c	19903 <sub>3/2</sub> —38240 <sub>3/2</sub> <sup>a</sup>
5454.124	18329.65	3		30133 <sub>4/2</sub> —48462 <sub>3/2</sub> <sup>a</sup>
5455.112	18326.33	20wd		22503 <sub>1/2</sub> —40829 <sub>0/2</sub> <sup>a</sup>
5458.159	18316.10	30cw		21920 <sub>2/2</sub> —40236 <sub>3/2</sub> <sup>a</sup>
5459.118	18312.88	2c		21450 <sub>4/2</sub> —39763 <sub>4/2</sub> <sup>a</sup>
5460.747	18307.42	10		25598 <sub>2/2</sub> —43905 <sub>3/2</sub> <sup>a</sup>
5467.471	18284.91	10		30133 <sub>4/2</sub> —48418 <sub>4/2</sub> <sup>a</sup>
5468.768	18280.57	3		29539 <sub>4/2</sub> —47819 <sub>4/2</sub> <sup>a</sup>
5471.962	18269.90	300		23460 <sub>3/2</sub> —41729 <sub>3/2</sub> <sup>a</sup>

TABLE 3. Classified lines of Tc I

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5477.540	18251.29	20 <i>cw</i>		13252 <sub>2 1/2</sub> —31503 <sub>1 1/2</sub>
5480.035	18242.98	3 <i>c</i>		20523 <sub>2 1/2</sub> —38766 <sub>3 1/2</sub>
5482.92	18233.37	120 <i>c</i>	12 <i>c</i>	14169 <sub>1 1/2</sub> —32403 <sub>0 1/2</sub>
5483.012	18233.08	70	7	43805 <sub>3 1/2</sub> —62038 <sub>3 1/2</sub>
5485.026	18226.39	50 <i>c</i>	1 <i>c</i>	22180 <sub>4 1/2</sub> —40406 <sub>3 1/2</sub>
5485.373	18225.23	60	3	21752 <sub>3 1/2</sub> —39977 <sub>2 1/2</sub>
5486.028	18223.06	2		22180 <sub>4 1/2</sub> —40403 <sub>4 1/2</sub>
5490.391	18208.58	30 <i>c</i>	2	31605 <sub>3 1/2</sub> —49813 <sub>2 1/2</sub>
5490.903	18206.88	5		25058 <sub>3 1/2</sub> —43265 <sub>4 1/2</sub>
5500.096	18176.45	20	2	21920 <sub>2 1/2</sub> —40096 <sub>1 1/2</sub>
5502.110	18169.79	5		21926 <sub>2 1/2</sub> —40096 <sub>1 1/2</sub>
5504.608	18161.55	2 <i>h</i>		13252 <sub>2 1/2</sub> —31414 <sub>3 1/2</sub>
5505.274	18159.35	30 <i>h</i>	2 <i>h</i>	31414 <sub>3 1/2</sub> —49573 <sub>3 1/2</sub>
5506.890	18154.02	80 <i>cw</i>	5 <i>c</i>	13252 <sub>2 1/2</sub> —31406 <sub>2 1/2</sub>
5510.866	18140.92	10	1	22265 <sub>2 1/2</sub> —40406 <sub>3 1/2</sub>
5511.478	18138.91	2		21752 <sub>3 1/2</sub> —39891 <sub>2 1/2</sub>
5513.630	18131.83	10 <i>h</i>		31114 <sub>4 1/2</sub> —49245 <sub>3 1/2</sub>
5514.216	18129.90	20 <i>h</i>		46656 <sub>3 1/2</sub> —64785 <sub>3 1/2</sub>
5518.051	18117.30	30	3	21450 <sub>4 1/2</sub> —39567 <sub>3 1/2</sub>
5524.107	18097.44	150	15	27971 <sub>4 1/2</sub> —46068 <sub>4 1/2</sub>
5526.878	18088.37	6		14169 <sub>1 1/2</sub> —32258 <sub>1 1/2</sub>
5528.233	18083.94	100	10	14169 <sub>1 1/2</sub> —32253 <sub>1 1/2</sub>
5532.793	18069.03	1		23460 <sub>3 1/2</sub> —41529 <sub>3 1/2</sub>
5535.098	18061.51	10		22180 <sub>4 1/2</sub> —40241 <sub>5 1/2</sub>
5536.394	18057.28	20	1	21920 <sub>2 1/2</sub> —39977 <sub>2 1/2</sub>
5538.875	18049.19	10 <i>cw</i>	1 <i>c</i>	24564 <sub>5 1/2</sub> —42613 <sub>4 1/2</sub>
5540.596	18043.58	10	1	21719 <sub>5 1/2</sub> —39763 <sub>4 1/2</sub>
5541.939	18039.21	200	20	25058 <sub>3 1/2</sub> —43097 <sub>4 1/2</sub>
5543.627	18033.72	80	8	22265 <sub>2 1/2</sub> —40299 <sub>2 1/2</sub>
5548.227	18018.77	2		25058 <sub>3 1/2</sub> —43077 <sub>3 1/2</sub>
5554.516	17998.37	1 <i>h</i>		29233 <sub>3 1/2</sub> —47232 <sub>2 1/2</sub>
5556.110	17993.20	2		26883 <sub>2 1/2</sub> —44876 <sub>1 1/2</sub>
5563.006	17970.90	10 <i>cw</i>		21920 <sub>2 1/2</sub> —39891 <sub>2 1/2</sub>
5564.840	17964.98	3 <i>h</i>		23957 <sub>3 1/2</sub> —41922 <sub>2 1/2</sub>
5565.140	17964.01	1		44537 <sub>2 1/2</sub> —62501 <sub>3 1/2</sub>
5566.102	17960.90	4 <i>h d</i>		31605 <sub>3 1/2</sub> —49565 <sub>2 1/2</sub>
5567.748	17955.59	2 <i>h</i>		26883 <sub>2 1/2</sub> —44839 <sub>3 1/2</sub>
5568.700	17952.52	5		25058 <sub>3 1/2</sub> —43011 <sub>2 1/2</sub>
5570.032	17948.23	3		25598 <sub>2 1/2</sub> —43546 <sub>2 1/2</sub>
5572.858	17939.13	20	1	23957 <sub>3 1/2</sub> —41896 <sub>4 1/2</sub>
5575.438	17930.83	10 <i>h</i>		31406 <sub>2 1/2</sub> —49337 <sub>2 1/2</sub>
5577.649	17923.72	15 <i>w</i>		21920 <sub>2 1/2</sub> —39844 <sub>1 1/2</sub>
5581.931	17909.97	2 <i>c</i>		24564 <sub>5 1/2</sub> —42474 <sub>6 1/2</sub>
5584.031	17903.23	20	2	25174 <sub>2 1/2</sub> —43077 <sub>3 1/2</sub>
5589.019	17887.26	3000 <i>cw</i>	300 <i>cw</i>	14733 <sub>4 1/2</sub> —32620 <sub>3 1/2</sub>
5591.400	17879.64	1 <i>h</i>		24564 <sub>5 1/2</sub> —42444 <sub>5 1/2</sub>
5596.614	17862.98	2 <i>h</i>		31114 <sub>4 1/2</sub> —48977 <sub>4 1/2</sub>
5602.229	17845.08	200	20	14169 <sub>1 1/2</sub> —32014 <sub>2 1/2</sub>
5604.069	17839.22	2 <i>h</i>		31406 <sub>2 1/2</sub> —49245 <sub>3 1/2</sub>
5604.762	17837.01	1 <i>h</i>		25174 <sub>2 1/2</sub> —43011 <sub>2 1/2</sub>



TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5606.376	17831.88	10 <i>h</i>		20384 <sub>3/2</sub> —38216 <sub>2/2</sub>
5606.376	17831.88	10 <i>h</i>		31414 <sub>4/2</sub> <sup>a</sup> —49245 <sub>3/2</sub>
5611.482	17815.65	20	2	21752 <sub>3/2</sub> —39567 <sub>3/2</sub>
5613.863	17808.10	2 <i>h</i>		31927 <sub>2/2</sub> <sup>a</sup> —49735 <sub>1/2</sub>
5615.272	17803.63	8	1	26883 <sub>2/2</sub> —44687 <sub>3/2</sub>
5615.272	17803.63	8	1	30060 <sub>2/2</sub> —47864 <sub>3/2</sub>
5616.795	17798.80	10		32014 <sub>2/2</sub> <sup>a</sup> —49813 <sub>2/2</sub>
5617.651	17796.09	7	1	20523 <sub>2/2</sub> —38319 <sub>1/2</sub>
5620.450	17787.23	2000 <i>c</i>	200	15298 <sub>3/2</sub> —33085 <sub>2/2</sub>
5625.232	17772.11	6		23957 <sub>3/2</sub> —41729 <sub>3/2</sub>
5628.956	17760.35	1		44839 <sub>3/2</sub> <sup>a</sup> —62599 <sub>4/2</sub>
5629.568	17758.42	5		25058 <sub>3/2</sub> —42817 <sub>4/2</sub>
5629.937	17757.25	300	30	14169 <sub>1/2</sub> —31927 <sub>2/2</sub>
5636.253	17737.36	30	3	27971 <sub>4/2</sub> <sup>a</sup> —45708 <sub>4/2</sub>
5637.792	17732.51	8 <i>h</i>	1	31605 <sub>3/2</sub> <sup>a</sup> —49337 <sub>2/2</sub>
5640.782	17723.11	40 <i>c</i>	2 <i>c</i>	14679 <sub>0/2</sub> —32403 <sub>0/2</sub>
5642.132	17718.87	1500	150	15624 <sub>2/2</sub> —33343 <sub>1/2</sub>
5643.940	17713.20	6		25058 <sub>3/2</sub> —42771 <sub>3/2</sub>
5644.357	17711.89	12	1	22265 <sub>2/2</sub> —39977 <sub>2/2</sub>
5644.944	17710.05	800	80	15770 <sub>1/2</sub> —33480 <sub>0/2</sub>
5645.694	17707.70	2		21752 <sub>3/2</sub> —39459 <sub>2/2</sub>
5650.259	17693.39	1		20523 <sub>2/2</sub> —38216 <sub>2/2</sub>
5652.909	17685.09	1		32253 <sub>1/2</sub> <sup>a</sup> —49938 <sub>2/2</sub>
5654.338	17680.62	6		32258 <sub>1/2</sub> <sup>a</sup> —49938 <sub>2/2</sub>
5657.490	17670.77	3		31114 <sub>4/2</sub> <sup>a</sup> —48784 <sub>3/2</sub>
5658.106	17668.85	8	1	25598 <sub>2/2</sub> —43267 <sub>3/2</sub>
5661.557	17658.08	20	2	26917 <sub>5/2</sub> —44576 <sub>4/2</sub>
5662.104	17656.37	10	1	21920 <sub>2/2</sub> —39576 <sub>1/2</sub>
5664.232	17649.74	4		21926 <sub>2/2</sub> —39576 <sub>1/2</sub>
5664.900	17647.66	40 <i>cw</i>	2 <i>cw</i>	21920 <sub>2/2</sub> —39567 <sub>3/2</sub>
5667.058	17640.94	15		21926 <sub>2/2</sub> —39567 <sub>3/2</sub>
5667.058	17640.94	15		31605 <sub>3/2</sub> <sup>a</sup> —49245 <sub>3/2</sub>
5672.153	17625.09	60	6	26950 <sub>3/2</sub> —44576 <sub>4/2</sub>
5675.178	17615.70	5 <i>h s</i>		27369 <sub>4/2</sub> <sup>a</sup> —44985 <sub>3/2</sub>
5678.478	17605.46	50	2	25405 <sub>1/2</sub> —43011 <sub>2/2</sub>
5680.973	17597.73	15		25174 <sub>2/2</sub> —42771 <sub>3/2</sub>
5682.298	17593.63	1 <i>h</i>		22503 <sub>1/2</sub> —40096 <sub>1/2</sub>
5687.301	17578.15	200	20	14679 <sub>0/2</sub> —32258 <sub>1/2</sub>
5688.730	17573.74	20	2	14679 <sub>0/2</sub> —32253 <sub>1/2</sub>
5689.046	17572.76	200	20	15770 <sub>1/2</sub> —33343 <sub>1/2</sub>
5692.212	17562.99	15 <i>h</i>	1	31414 <sub>4/2</sub> <sup>a</sup> —48977 <sub>4/2</sub>
5694.330	17556.45	15 <i>c</i>	2 <i>c</i>	24147 <sub>4/2</sub> —41703 <sub>4/2</sub>
5696.056	17551.13	20 <i>h</i>	2	32014 <sub>2/2</sub> <sup>a</sup> —49565 <sub>2/2</sub>
5696.626	17549.38	18 <i>cw</i>	2 <i>c</i>	27369 <sub>4/2</sub> <sup>a</sup> —44919 <sub>4/2</sub>
5702.894	17530.09	5 <i>h</i>		31414 <sub>3/2</sub> <sup>a</sup> —48944 <sub>2/2</sub>
5705.403	17522.38	1 <i>h</i>		25174 <sub>2/2</sub> —42696 <sub>2/2</sub>
5718.775	17481.41	1 <i>h</i>		32253 <sub>1/2</sub> <sup>a</sup> —49735 <sub>1/2</sub>
5719.542	17479.06	10	1	25598 <sub>2/2</sub> —43077 <sub>3/2</sub>
5720.205	17477.04	1 <i>h</i>		32258 <sub>1/2</sub> <sup>a</sup> —49735 <sub>1/2</sub>
5721.090	17474.339	10 <i>h</i>	1 <i>h</i>	22503 <sub>1/2</sub> —39977 <sub>2/2</sub>

TABLE 3. Classified lines of Tc I

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5723.255	17467.72	2h	70	24564 <sub>5/2</sub> —42032 <sub>5/2</sub> <sup>o</sup>
5725.314	17461.44	700		15624 <sub>2/2</sub> —33085 <sub>2/2</sub> <sup>o</sup>
5732.791	17438.67	3		27517 <sub>2/2</sub> —44955 <sub>1/2</sub> <sup>o</sup>
5734.691	17432.89	2h		20783 <sub>3/2</sub> —38216 <sub>2/2</sub> <sup>o</sup>
5734.691	17432.89	2h		21752 <sub>3/2</sub> —39185 <sub>4/2</sub> <sup>o</sup>
5735.636	17430.02	3	1h	26883 <sub>2/2</sub> —44313 <sub>1/2</sub> <sup>o</sup>
5737.543	17424.23	5w		10516 <sub>3/2</sub> —27940 <sub>2/2</sub> <sup>o</sup>
5739.479	17418.35	1h		41896 <sub>4/2</sub> —59315 <sub>5/2</sub> <sup>o</sup>
5741.301	17412.82	5		25598 <sub>2/2</sub> —43011 <sub>2/2</sub> <sup>o</sup>
5741.943	17410.87	10hw		27660 <sub>3/2</sub> —45071 <sub>2/2</sub> <sup>o</sup>
5748.307	17391.60	3		30060 <sub>2/2</sub> —47452 <sub>2/2</sub> <sup>o</sup>
5749.542	17387.86	10c		22503 <sub>1/2</sub> —39891 <sub>2/2</sub> <sup>o</sup>
5751.050	17383.30	1h		26883 <sub>2/2</sub> —44266 <sub>3/2</sub> <sup>o</sup>
5754.775	17372.05	20h		31605 <sub>3/2</sub> —48977 <sub>4/2</sub> <sup>o</sup>
5755.199	17370.77	3h		31414 <sub>3/2</sub> —48784 <sub>3/2</sub> <sup>o</sup>
5758.298	17361.42	1h		22615 <sub>3/2</sub> —39977 <sub>2/2</sub> <sup>o</sup>
5760.389	17355.12	2		27517 <sub>2/2</sub> —44872 <sub>2/2</sub> <sup>o</sup>
5761.734	17351.07	1		44687 <sub>3/2</sub> —62038 <sub>3/2</sub> <sup>o</sup>
5762.449	17348.92	5		25174 <sub>2/2</sub> —42523 <sub>3/2</sub> <sup>o</sup>
5765.698	17339.14	5h		31605 <sub>3/2</sub> —48944 <sub>2/2</sub> <sup>o</sup>
5767.232	17334.53	4hc		14169 <sub>1/2</sub> —31503 <sub>1/2</sub> <sup>o</sup>
5767.546	17333.58	6		47452 <sub>2/2</sub> —64785 <sub>3/2</sub> <sup>o</sup>
5768.002	17332.21	2		24564 <sub>5/2</sub> —41896 <sub>4/2</sub> <sup>o</sup>
5769.704	17327.10	3		27940 <sub>2/2</sub> —45267 <sub>1/2</sub> <sup>o</sup>
5770.249	17325.47	4		27660 <sub>3/2</sub> —44985 <sub>3/2</sub> <sup>o</sup>
5771.468	17321.81	500c	50c	15298 <sub>3/2</sub> —32620 <sub>3/2</sub> <sup>o</sup>
5772.500	17318.71	1h	2	26788 <sub>2/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>
5773.656	17315.24	20		15770 <sub>1/2</sub> —33085 <sub>2/2</sub> <sup>o</sup>
5775.069	17311.01	10cw		22265 <sub>2/2</sub> —39576 <sub>1/2</sub> <sup>o</sup>
5777.360	17304.14	1		31114 <sub>4/2</sub> —48418 <sub>4/2</sub> <sup>o</sup>
5777.976	17302.30	6		22265 <sub>2/2</sub> —39567 <sub>3/2</sub> <sup>o</sup>
5792.474	17258.99	10cw	1	27660 <sub>3/2</sub> —44919 <sub>4/2</sub> <sup>o</sup>
5799.850	17237.04	80c	8c	14169 <sub>1/2</sub> —31406 <sub>2/2</sub> <sup>o</sup>
5802.433	17229.37	10	1	28839 <sub>5/2</sub> —46068 <sub>4/2</sub> <sup>o</sup>
5805.214	17221.11	20	2	30060 <sub>2/2</sub> —47281 <sub>2/2</sub> <sup>o</sup>
5805.525	17220.19	10	1	26917 <sub>5/2</sub> —44138 <sub>5/2</sub> <sup>o</sup>
5806.126	17218.41	2h	10c	26788 <sub>2/2</sub> —44007 <sub>2/2</sub> <sup>o</sup>
5814.241	17194.38	100cw		22265 <sub>2/2</sub> —39459 <sub>2/2</sub> <sup>o</sup>
5814.639	17193.20	2		32620 <sub>3/2</sub> —49813 <sub>2/2</sub> <sup>o</sup>
5815.038	17192.02	1h		25058 <sub>3/2</sub> —42250 <sub>2/2</sub> <sup>o</sup>
5819.176	17179.80	15hl		31605 <sub>3/2</sub> —48784 <sub>3/2</sub> <sup>o</sup>
5821.310	17173.50	10	1	25598 <sub>2/2</sub> —42771 <sub>3/2</sub> <sup>o</sup>
5823.196	17167.94	8	1	27940 <sub>2/2</sub> —45108 <sub>1/2</sub> <sup>o</sup>
5827.189	17156.17	10	1	26950 <sub>3/2</sub> —44107 <sub>2/2</sub> <sup>o</sup>
5831.477	17143.56	200	20	10516 <sub>3/2</sub> —27660 <sub>3/2</sub> <sup>o</sup>
5831.858	17142.44	2	15c	23957 <sub>3/2</sub> —41100 <sub>2/2</sub> <sup>o</sup>
5832.836	17139.56	2		26950 <sub>3/2</sub> —44090 <sub>3/2</sub> <sup>o</sup>
5835.865	17130.67	6		23957 <sub>3/2</sub> —41088 <sub>3/2</sub> <sup>o</sup>
5836.329	17129.30	150c		13252 <sub>2/2</sub> —30382 <sub>3/2</sub> <sup>o</sup>
5838.366	17123.33	10		26883 <sub>2/2</sub> —44007 <sub>2/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5846.973	17098.12	1		42217 <sup>a</sup> <sub>4 1/2</sub> —59315 <sub>5 1/2</sub>
5850.364	17088.21	6	1	11063 <sub>2 1/2</sub> —28151 <sup>a</sup> <sub>1 1/2</sub>
5853.376	17079.42	25 <i>h</i>	2 <i>h</i>	32258 <sup>a</sup> <sub>1 1/2</sub> —49337 <sub>2 1/2</sub>
5855.439	17073.40	7 <i>cw</i>		22503 <sub>1 1/2</sub> —39576 <sup>a</sup> <sub>1 1/2</sub>
5855.898	17072.06	1		25174 <sub>2 1/2</sub> —42246 <sup>a</sup> <sub>3 1/2</sub>
5856.656	17069.85	5		29539 <sub>4 1/2</sub> —46608 <sup>a</sup> <sub>3 1/2</sub>
5863.865	17048.87	30 <i>h</i>		31414 <sup>a</sup> <sub>3 1/2</sub> —48462 <sub>3 1/2</sub>
5865.826	17043.17	10 <i>cw</i>	1	25174 <sub>2 1/2</sub> —42217 <sup>a</sup> <sub>1 1/2</sub>
5867.484	17038.35	10 <i>cw</i>	1	28151 <sup>a</sup> <sub>1 1/2</sub> —45189 <sub>0 1/2</sub>
5873.635	17020.51	7	1	27517 <sub>2 1/2</sub> —44537 <sup>a</sup> <sub>2 1/2</sub>
5874.804	17017.12	20	1	31927 <sup>a</sup> <sub>2 1/2</sub> —48944 <sub>2 1/2</sub>
5879.288	17004.14	18 <i>h</i>		31414 <sup>a</sup> <sub>3 1/2</sub> —48418 <sub>4 1/2</sub>
5882.067	16996.11	25	2	15624 <sub>2 1/2</sub> —32620 <sup>a</sup> <sub>3 1/2</sub>
5890.704	16971.19	1		28296 <sup>a</sup> <sub>0 1/2</sub> —45267 <sub>1 1/2</sub>
5896.406	16954.78	6		26950 <sub>3 1/2</sub> —43905 <sub>3 1/2</sub>
5897.420	16951.86	3		22615 <sub>3 1/2</sub> —39567 <sup>a</sup> <sub>3 1/2</sub>
5903.415	16934.65	3		25058 <sub>3 1/2</sub> —41993 <sup>a</sup> <sub>3 1/2</sub>
5905.477	16928.74	8 <i>h</i>		25174 <sub>2 1/2</sub> —42102 <sup>a</sup> <sub>2 1/2</sub>
5905.904	16927.51	10	1	16415 <sub>2 1/2</sub> —33343 <sup>a</sup> <sub>1 1/2</sub>
5908.577	16919.86	15 <i>cw</i>	1 <i>c</i>	28151 <sup>a</sup> <sub>1 1/2</sub> —45071 <sub>2 1/2</sub>
5917.963	16893.02	2 <i>h</i>		28296 <sup>a</sup> <sub>0 1/2</sub> —45189 <sub>0 1/2</sub>
5918.780	16890.69	1		45708 <sup>a</sup> <sub>4 1/2</sub> —62599 <sub>4 1/2</sub>
5919.462	16888.74	5	1	25405 <sub>1 1/2</sub> —42294 <sup>a</sup> <sub>2 1/2</sub>
5923.357	16877.64	150	10	11063 <sub>2 1/2</sub> —27940 <sup>a</sup> <sub>2 1/2</sub>
5924.468	16874.47	1000 <i>cw</i>	100 <i>cw</i>	0 <sub>2 1/2</sub> —16874 <sup>a</sup> <sub>3 1/2</sub>
5925.384	16871.86	20 <i>c</i>	1 <i>c</i>	14733 <sub>4 1/2</sub> —31605 <sup>a</sup> <sub>3 1/2</sub>
5925.714	16870.92	10	1	42444 <sup>a</sup> <sub>5 1/2</sub> —59315 <sub>5 1/2</sub>
5926.286	16869.30	200	20	28839 <sub>5 1/2</sub> —45708 <sup>a</sup> <sub>4 1/2</sub>
5928.111	16864.10	2		25058 <sub>3 1/2</sub> —41922 <sup>a</sup> <sub>2 1/2</sub>
5928.111	16864.10	2		27274 <sub>6 1/2</sub> —44138 <sup>a</sup> <sub>5 1/2</sub>
5930.310	16857.85	20		31927 <sup>a</sup> <sub>2 1/2</sub> —48784 <sub>3 1/2</sub>
5930.544	16857.18	2		29539 <sub>4 1/2</sub> —46396 <sup>a</sup> <sub>3 1/2</sub>
5931.929	16853.25	600 <i>c</i>	60 <i>c</i>	10516 <sub>3 1/2</sub> —27369 <sup>a</sup> <sub>4 1/2</sub>
5937.136	16838.47	5 <i>h</i>		25058 <sub>3 1/2</sub> —41896 <sup>a</sup> <sub>4 1/2</sub>
5938.394	16834.90	20	2	29233 <sub>3 1/2</sub> —46068 <sup>a</sup> <sub>4 1/2</sub>
5942.259	16823.95	20 <i>cw</i>	1	14679 <sub>0 1/2</sub> —31503 <sup>a</sup> <sub>1 1/2</sub>
5946.514	16811.91	10 <i>cw</i>		28296 <sup>a</sup> <sub>0 1/2</sub> —45108 <sub>1 1/2</sub>
5951.484	16797.87	40 <i>c</i>	3 <i>c</i>	16287 <sub>3 1/2</sub> —33085 <sup>a</sup> <sub>2 1/2</sub>
5961.256	16770.34	2		42545 <sup>a</sup> <sub>4 1/2</sub> —59315 <sub>5 1/2</sub>
5969.013	16748.54	6	1	25174 <sub>2 1/2</sub> —41922 <sup>a</sup> <sub>2 1/2</sub>
5974.845	16732.20	8	1	27369 <sup>a</sup> <sub>4 1/2</sub> —44102 <sub>3 1/2</sub>
5977.678	16724.27	1		27517 <sub>2 1/2</sub> —44241 <sup>a</sup> <sub>2 1/2</sub>
5979.893	16718.07	4		11578 <sub>1 1/2</sub> —28296 <sup>a</sup> <sub>0 1/2</sub>
5980.512	16716.34	20 <i>c</i>	1 <i>c</i>	15298 <sub>3 1/2</sub> —32014 <sup>a</sup> <sub>2 1/2</sub>
5980.694	16715.83	10		27971 <sub>4 1/2</sub> —44687 <sup>a</sup> <sub>3 1/2</sub>
5986.820	16698.73	6		26950 <sub>3 1/2</sub> —43649 <sup>a</sup> <sub>4 1/2</sub>
5988.406	16694.31	1 <i>h</i>		47232 <sup>a</sup> <sub>2 1/2</sub> —63926 <sub>2 1/2</sub>
5993.208	16680.93	10 <i>cw</i>		14733 <sub>4 1/2</sub> —31414 <sup>a</sup> <sub>3 1/2</sub>
5996.700	16671.22	15 <i>c</i>	1 <i>c</i>	25058 <sub>3 1/2</sub> —41729 <sup>a</sup> <sub>3 1/2</sub>
5997.130	16670.02	5		16415 <sub>2 1/2</sub> —33085 <sup>a</sup> <sub>2 1/2</sub>

TABLE 3. Classified lines of Tc 1

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
5999.701	16662.88	3 <i>c</i>		26883 <sub>2 1/2</sub> —43546 <sub>2 1/2</sub> <sup>o</sup>
6003.496	16652.34	1		25598 <sub>2 1/2</sub> —42250 <sub>2 1/2</sub> <sup>o</sup>
6004.566	16649.38	3 <i>h</i>		33085 <sub>2 1/2</sub> —49735 <sub>1 1/2</sub> <sup>o</sup>
6005.099	16647.90	1 <i>h</i>	1 <i>h</i>	25598 <sub>2 1/2</sub> —42246 <sub>3 1/2</sub> <sup>o</sup>
6006.099	16645.13	2 <i>h</i>		25058 <sub>3 1/2</sub> —41703 <sub>4 1/2</sub> <sup>o</sup>
6010.191	16633.80	20 <i>c</i>	2 <i>c</i>	15624 <sub>2 1/2</sub> —32258 <sub>1 1/2</sub> <sup>o</sup>
6011.790	16629.37	4		15624 <sub>2 1/2</sub> —32253 <sub>1 1/2</sub> <sup>o</sup>
6012.104	16628.50	15 <i>cw</i>	1 <i>cw</i>	15298 <sub>3 1/2</sub> —31927 <sub>2 1/2</sub> <sup>o</sup>
6013.183	16625.52	10 <i>h</i>		32620 <sub>3 1/2</sub> —49245 <sub>3 1/2</sub> <sup>o</sup>
6020.726	16604.69	10	1	27971 <sub>4 1/2</sub> —44576 <sub>4 1/2</sub> <sup>o</sup>
6023.500	16597.04	50	5	11063 <sub>2 1/2</sub> —27660 <sub>3 1/2</sub> <sup>o</sup>
6024.046	16595.54	2 <i>h</i>		33343 <sub>1 1/2</sub> —49938 <sub>2 1/2</sub> <sup>o</sup>
6024.423	16594.50	10	1	26917 <sub>5 1/2</sub> —43512 <sub>5 1/2</sub> <sup>o</sup>
6026.085	16589.92	2		27517 <sub>2 1/2</sub> —44107 <sub>2 1/2</sub> <sup>o</sup>
6028.542	16583.16	6	1	27274 <sub>6 1/2</sub> —43857 <sub>6 1/2</sub> <sup>o</sup>
6032.355	16572.68	60	6	11578 <sub>1 1/2</sub> —28151 <sub>1 1/2</sub> <sup>o</sup>
6038.504	16555.80	4 <i>h</i>		25174 <sub>2 1/2</sub> —41729 <sub>3 1/2</sub> <sup>o</sup>
6047.992	16529.83	60	6	29539 <sub>4 1/2</sub> —46068 <sub>4 1/2</sub> <sup>o</sup>
6052.685	16517.02	1 <i>h</i>		25405 <sub>1 1/2</sub> —41922 <sub>2 1/2</sub> <sup>o</sup>
6057.249	16504.57	20	2	25598 <sub>2 1/2</sub> —42102 <sub>2 1/2</sub> <sup>o</sup>
6063.473	16487.63	30	3	15770 <sub>1 1/2</sub> —32258 <sub>1 1/2</sub> <sup>o</sup>
6063.473	16487.63	30	3	33085 <sub>2 1/2</sub> —49573 <sub>3 1/2</sub> <sup>o</sup>
6063.930	16486.39	20 <i>c</i>	2	16133 <sub>4 1/2</sub> —32620 <sub>3 1/2</sub> <sup>o</sup>
6065.090	16483.23	200	20	15770 <sub>1 1/2</sub> —32253 <sub>1 1/2</sub> <sup>o</sup>
6066.182	16480.27	5 <i>h</i>		33085 <sub>2 1/2</sub> —49565 <sub>2 1/2</sub> <sup>o</sup>
6069.785	16470.48	30	3	33343 <sub>1 1/2</sub> —49813 <sub>2 1/2</sub> <sup>o</sup>
6077.819	16448.71	1		23957 <sub>3 1/2</sub> —40406 <sub>3 1/2</sub> <sup>o</sup>
6080.327	16441.93	1		27660 <sub>3 1/2</sub> —44102 <sub>3 1/2</sub> <sup>o</sup>
6085.229	16428.68	800	80	0 <sub>2 1/2</sub> —16428 <sub>2 1/2</sub> <sup>o</sup>
6093.741	16405.73	20 <i>c</i>	2 <i>c</i>	11890 <sub>0 1/2</sub> —28296 <sub>0 1/2</sub> <sup>o</sup>
6097.790	16394.84	1		25598 <sub>2 1/2</sub> —41993 <sub>3 1/2</sub> <sup>o</sup>
6098.891	16391.88	3 <i>h</i>		33343 <sub>1 1/2</sub> —49735 <sub>1 1/2</sub> <sup>o</sup>
6099.387	16390.55	300	30	15624 <sub>2 1/2</sub> —32014 <sub>2 1/2</sub> <sup>o</sup>
6102.961	16380.95	500 <i>cw</i>	50 <i>c</i>	14733 <sub>4 1/2</sub> —31114 <sub>4 1/2</sub> <sup>o</sup>
6111.120	16359.08	20	1	14169 <sub>1 1/2</sub> —30528 <sub>2 1/2</sub> <sup>o</sup>
6112.030	16356.64	20 <i>h</i>	1 <i>h</i>	32620 <sub>3 1/2</sub> —48977 <sub>4 1/2</sub> <sup>o</sup>
6112.630	16355.04	1		25174 <sub>2 1/2</sub> —41529 <sub>3 1/2</sub> <sup>o</sup>
6112.630	16355.04	1		39763 <sub>4 1/2</sub> —56118 <sub>5 1/2</sub> <sup>o</sup>
6115.490	16347.39	4 <i>h</i>		26917 <sub>5 1/2</sub> —43265 <sub>4 1/2</sub> <sup>o</sup>
6120.684	16333.52	1000	100	23265 <sub>3 1/2</sub> —39598 <sub>2 1/2</sub> <sup>o</sup>
6122.196	16329.48	1		45708 <sub>4 1/2</sub> —62038 <sub>3 1/2</sub> <sup>o</sup>
6124.339	16323.77	5		32620 <sub>3 1/2</sub> —48944 <sub>2 1/2</sub> <sup>o</sup>
6127.167	16316.24	8	1	26950 <sub>3 1/2</sub> —43267 <sub>3 1/2</sub> <sup>o</sup>
6127.791	16314.57	1		26950 <sub>3 1/2</sub> —43265 <sub>4 1/2</sub> <sup>o</sup>
6130.805	16306.55	1000	100	15298 <sub>3 1/2</sub> —31605 <sub>3 1/2</sub> <sup>o</sup>
6132.230	16302.76	150 <i>c</i>	10 <i>c</i>	15624 <sub>2 1/2</sub> —31927 <sub>2 1/2</sub> <sup>o</sup>
6150.522	16254.28	2		26917 <sub>5 1/2</sub> —43172 <sub>5 1/2</sub> <sup>o</sup>
6151.460	16251.80	7 <i>h</i>		33085 <sub>2 1/2</sub> —49337 <sub>2 1/2</sub> <sup>o</sup>
6154.274	16244.37	5	1	15770 <sub>1 1/2</sub> —32014 <sub>2 1/2</sub> <sup>o</sup>
6156.540	16238.39	1 <i>h</i>		27274 <sub>6 1/2</sub> —43512 <sub>5 1/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
6163.603	16219.788	8	1	25405 <sub>1 1/2</sub> —41625 <sub>0 1/2</sub>
6174.723	16190.578	1 <i>h</i>		25598 <sub>2 1/2</sub> —41788 <sub>0 1/2</sub>
6182.668	16169.773	20	2	29539 <sub>4 1/2</sub> —45708 <sub>0 4 1/2</sub>
6183.771	16166.889	10	1	27971 <sub>4 1/2</sub> —44138 <sub>0 5 1/2</sub>
6184.698	16164.465	100	2	32620 <sub>3 1/2</sub> —48784 <sub>3 1/2</sub>
6185.908	16161.304	5		27940 <sub>0 2 1/2</sub> —44102 <sub>3 1/2</sub>
6187.702	16156.618	3		15770 <sub>1 1/2</sub> —31927 <sub>0 2 1/2</sub>
6192.665	16143.670	800	80	23455 <sub>0 2 1/2</sub> —39598 <sub>2 1/2</sub>
6195.384	16136.585	40	2	27660 <sub>3 1/2</sub> —43796 <sub>2 1/2</sub>
6197.312	16131.565	1		25598 <sub>2 1/2</sub> —41729 <sub>0 3 1/2</sub>
6198.853	16127.554	4 <i>h</i>		26883 <sub>2 1/2</sub> —43011 <sub>0 2 1/2</sub>
6202.630	16117.734	5		43197 <sub>0 6 1/2</sub> —59315 <sub>5 1/2</sub>
6202.902	16117.027	3		26788 <sub>2 1/2</sub> —42905 <sub>0 2 1/2</sub>
6204.446	16113.016	4		26788 <sub>2 1/2</sub> —42901 <sub>0 1 1/2</sub>
6214.032	16088.160	30	2	27940 <sub>0 2 1/2</sub> —44028 <sub>1 1/2</sub>
6218.473	16076.671	2		25174 <sub>2 1/2</sub> —41250 <sub>0 1 1/2</sub>
6232.076	16041.580	2 <i>h</i>		25058 <sub>3 1/2</sub> —41100 <sub>0 2 1/2</sub>
6236.621	16029.889	3 <i>c</i>		25058 <sub>3 1/2</sub> —41088 <sub>0 3 1/2</sub>
6236.865	16029.262	8	1	27517 <sub>2 1/2</sub> —43546 <sub>0 2 1/2</sub>
6239.698	16021.984	20	1	27369 <sub>0 4 1/2</sub> —43391 <sub>3 1/2</sub>
6244.178	16010.489	600 <i>cw</i>	50 <i>c</i>	23588 <sub>0 1 1/2</sub> —39598 <sub>2 1/2</sub>
6248.971	15998.209	15	1	28151 <sub>0 1 1/2</sub> —44149 <sub>0 0 1/2</sub>
6255.807	15980.728	5	1	15624 <sub>2 1/2</sub> —31605 <sub>0 3 1/2</sub>
6266.102	15954.472	2 <i>w</i>		26950 <sub>3 1/2</sub> —42905 <sub>0 2 1/2</sub>
6267.598	15950.664	2 <i>w</i>		14679 <sub>0 0 1/2</sub> —30630 <sub>0 1 1/2</sub>
6274.014	15934.352	1		27971 <sub>4 1/2</sub> —43905 <sub>0 3 1/2</sub>
6275.425	15930.769	4		25598 <sub>2 1/2</sub> —41529 <sub>0 3 1/2</sub>
6277.250	15926.138	2 <i>cw</i>		25174 <sub>2 1/2</sub> —41100 <sub>0 2 1/2</sub>
6287.962	15899.007	4 <i>cw</i>		26917 <sub>5 1/2</sub> —42817 <sub>0 4 1/2</sub>
6288.358	15898.006	1 <i>h</i>		27274 <sub>6 1/2</sub> —43172 <sub>0 5 1/2</sub>
6290.397	15892.852	5		46608 <sub>0 3 1/2</sub> —62501 <sub>3 1/2</sub>
6292.239	15888.200	1 <i>h</i>		26883 <sub>2 1/2</sub> —42771 <sub>0 3 1/2</sub>
6296.423	15877.642	2		28151 <sub>0 1 1/2</sub> —44028 <sub>1 1 1/2</sub>
6296.765	15876.780	6 <i>h</i>		40241 <sub>0 5 1/2</sub> —56118 <sub>5 1/2</sub>
6304.048	15858.438	6		33085 <sub>0 2 1/2</sub> —48944 <sub>2 1/2</sub>
6305.028	15855.973	30	3	27940 <sub>0 2 1/2</sub> —43796 <sub>2 1/2</sub>
6306.260	15852.875	8		28296 <sub>0 0 1/2</sub> —44149 <sub>0 0 1/2</sub>
6310.420	15842.425	40 <i>c</i>	3 <i>c</i>	16415 <sub>2 1/2</sub> —32258 <sub>0 1 1/2</sub>
6312.179	15838.010	100	10	16415 <sub>2 1/2</sub> —32253 <sub>0 1 1/2</sub>
6319.033	15820.831	1		26950 <sub>3 1/2</sub> —42771 <sub>0 3 1/2</sub>
6321.099	15815.660	1		15298 <sub>3 1/2</sub> —31114 <sub>0 4 1/2</sub>
6326.116	15803.118	1		17282 <sub>3 1/2</sub> —33085 <sub>0 2 1/2</sub>
6347.458	15749.983	1		27517 <sub>2 1/2</sub> —43267 <sub>0 3 1/2</sub>
6354.632	15732.203	50 <i>cw</i>	2 <i>c</i>	28296 <sub>0 0 1/2</sub> —44028 <sub>1 1/2</sub>
6354.860	15731.638	100	10	27660 <sub>0 3 1/2</sub> —43391 <sub>3 1/2</sub>
6356.732	15727.005	100	10	16287 <sub>3 1/2</sub> —32014 <sub>0 2 1/2</sub>
6369.313	15695.941	4		26917 <sub>5 1/2</sub> —42613 <sub>0 4 1/2</sub>
6380.889	15667.466	5 <i>c</i>		25405 <sub>1 1/2</sub> —41073 <sub>0 1 1/2</sub>
6382.724	15662.962	3		26950 <sub>3 1/2</sub> —42613 <sub>0 4 1/2</sub>
6388.426	15648.982	30 <i>cw</i>	1	14733 <sub>4 1/2</sub> —30382 <sub>0 3 1/2</sub>

TABLE 3. *Classified lines of Tc 1*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
6389.871	15645.44	80	6	28151 <sup>o</sup> <sub>1/2</sub> —43796 <sup>o</sup> <sub>2/2</sub>
6392.408	15639.23	30 <i>c</i>	2 <i>c</i>	16287 <sup>o</sup> <sub>3/2</sub> —31927 <sup>o</sup> <sub>2/2</sub>
6392.716	15638.48	3		29233 <sup>o</sup> <sub>3/2</sub> —44872 <sup>o</sup> <sub>2/2</sub>
6408.830	15599.16	100	8	16415 <sup>o</sup> <sub>2/2</sub> —32014 <sup>o</sup> <sub>3/2</sub>
6419.353	15573.58	2		19702 <sup>o</sup> <sub>1/2</sub> —35276 <sup>o</sup> <sub>0/2</sub>
6432.774	15541.09	5		27971 <sup>o</sup> <sub>4/2</sub> —43512 <sup>o</sup> <sub>5/2</sub>
6445.100	15511.37	30 <i>cw</i>	1 <i>cw</i>	16415 <sup>o</sup> <sub>2/2</sub> —31927 <sup>o</sup> <sub>2/2</sub>
6449.026	15501.93	4		25598 <sup>o</sup> <sub>2/2</sub> —41100 <sup>o</sup> <sub>3/2</sub>
6453.925	15490.16	3		25598 <sup>o</sup> <sub>2/2</sub> —41088 <sup>o</sup> <sub>3/2</sub>
6455.896	15485.43	1000	30	27369 <sup>o</sup> <sub>4/2</sub> —42855 <sup>o</sup> <sub>4/2</sub>
6460.338	15474.79	5 <i>h</i>		25598 <sup>o</sup> <sub>2/2</sub> —41073 <sup>o</sup> <sub>1/2</sub>
6461.928	15470.98	600 <i>c</i>	20 <i>c</i>	16133 <sup>o</sup> <sub>4/2</sub> —31605 <sup>o</sup> <sub>3/2</sub>
6467.570	15457.48	2 <i>h</i>		26788 <sup>o</sup> <sub>2/2</sub> —42246 <sup>o</sup> <sub>3/2</sub>
6470.270	15451.03	100	6	27940 <sup>o</sup> <sub>2/2</sub> —43391 <sup>o</sup> <sub>3/2</sub>
6479.620	15428.74	1 <i>h</i>		26788 <sup>o</sup> <sub>2/2</sub> —42217 <sup>o</sup> <sub>4/2</sub>
6491.676	15400.08	200 <i>cw</i>	5	14733 <sup>o</sup> <sub>4/2</sub> —30133 <sup>o</sup> <sub>4/2</sub>
6496.606	15388.40	10		38556 <sup>o</sup> <sub>1/2</sub> —53945 <sup>o</sup> <sub>2/2</sub>
6496.606	15388.40	10		27517 <sup>o</sup> <sub>2/2</sub> —42905 <sup>o</sup> <sub>2/2</sub>
6515.160	15344.57	20		25058 <sup>o</sup> <sub>3/2</sub> —40403 <sup>o</sup> <sub>4/2</sub>
6515.660	15343.40	2 <i>h</i>		26950 <sup>o</sup> <sub>3/2</sub> —42294 <sup>o</sup> <sub>2/2</sub>
6516.192	15342.14	2		29233 <sup>o</sup> <sub>3/2</sub> —44576 <sup>o</sup> <sub>4/2</sub>
6519.740	15333.79	1		26883 <sup>o</sup> <sub>2/2</sub> —42217 <sup>o</sup> <sub>4/2</sub>
6526.817	15317.17	200	20	16287 <sup>o</sup> <sub>3/2</sub> —31605 <sup>o</sup> <sub>3/2</sub>
6528.038	15314.30	5 <i>c</i>		26788 <sup>o</sup> <sub>2/2</sub> —42102 <sup>o</sup> <sub>3/2</sub>
6532.494	15303.86	2		29233 <sup>o</sup> <sub>3/2</sub> —44537 <sup>o</sup> <sub>2/2</sub>
6534.063	15300.18	6		29539 <sup>o</sup> <sub>4/2</sub> —44839 <sup>o</sup> <sub>3/2</sub>
6534.659	15298.79	10		28839 <sup>o</sup> <sub>5/2</sub> —44138 <sup>o</sup> <sub>5/2</sub>
6535.947	15295.77	3 <i>h</i>		27971 <sup>o</sup> <sub>4/2</sub> —43267 <sup>o</sup> <sub>3/2</sub>
6536.633	15294.17	5		27971 <sup>o</sup> <sub>4/2</sub> —43265 <sup>o</sup> <sub>4/2</sub>
6537.425	15292.31	2 <i>c</i>		17328 <sup>o</sup> <sub>4/2</sub> —32620 <sup>o</sup> <sub>3/2</sub>
6563.197	15232.26	4		25174 <sup>o</sup> <sub>2/2</sub> —40406 <sup>o</sup> <sub>3/2</sub>
6564.004	15230.39	50 <i>w</i>		15298 <sup>o</sup> <sub>3/2</sub> —30528 <sup>o</sup> <sub>2/2</sub>
6568.820	15219.23	2 <i>h</i>		34515 <sup>o</sup> <sub>2/2</sub> —49735 <sup>o</sup> <sub>1/2</sub>
6576.820	15200.71	50 <i>w l</i>		27274 <sup>o</sup> <sub>6/2</sub> —42474 <sup>o</sup> <sub>6/2</sub>
6576.820	15200.71	50 <i>w l</i>		27971 <sup>o</sup> <sub>4/2</sub> —43172 <sup>o</sup> <sub>5/2</sub>
6579.243	15195.12	150		27660 <sup>o</sup> <sub>3/2</sub> —42855 <sup>o</sup> <sub>4/2</sub>
6581.747	15189.33	8		16415 <sup>o</sup> <sub>2/2</sub> —31605 <sup>o</sup> <sub>3/2</sub>
6586.147	15179.19	3		27517 <sup>o</sup> <sub>2/2</sub> —42696 <sup>o</sup> <sub>2/2</sub>
6590.039	15170.22	15		27274 <sup>o</sup> <sub>6/2</sub> —42444 <sup>o</sup> <sub>3/2</sub>
6598.037	15151.83	10		26950 <sup>o</sup> <sub>3/2</sub> —42102 <sup>o</sup> <sub>2/2</sub>
6609.746	15124.99	3 <i>h s</i>		25174 <sup>o</sup> <sub>2/2</sub> —40299 <sup>o</sup> <sub>2/2</sub>
6614.304	15114.57	3		26917 <sup>o</sup> <sub>5/2</sub> —42032 <sup>o</sup> <sub>5/2</sub>
6618.080	15105.95	2		27971 <sup>o</sup> <sub>4/2</sub> —43077 <sup>o</sup> <sub>3/2</sub>
6625.573	15088.86	500 <i>cw</i>	10 <i>cw</i>	16025 <sup>o</sup> <sub>5/2</sub> —31114 <sup>o</sup> <sub>4/2</sub>
6627.896	15083.57	50 <i>c</i>	1 <i>c</i>	15298 <sup>o</sup> <sub>3/2</sub> —30382 <sup>o</sup> <sub>3/2</sub>
6646.143	15042.16	1		26950 <sup>o</sup> <sub>3/2</sub> —41993 <sup>o</sup> <sub>3/2</sub>
6647.489	15039.12	4		26883 <sup>o</sup> <sub>2/2</sub> —41922 <sup>o</sup> <sub>2/2</sub>
6648.383	15037.09	30	1	29539 <sup>o</sup> <sub>4/2</sub> —44576 <sup>o</sup> <sub>4/2</sub>
6650.177	15033.04	2		29233 <sup>o</sup> <sub>3/2</sub> —44266 <sup>o</sup> <sub>3/2</sub>
6656.906	15017.84	2		28839 <sup>o</sup> <sub>5/2</sub> —43857 <sup>o</sup> <sub>6/2</sub>



TABLE 3. Classified lines of Tc I

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
6661.433	15007.64	5		29233 <sub>3/2</sub> —44241 <sub>1/2</sub>
6662.015	15006.33	20		15624 <sub>2/2</sub> —30630 <sub>1/2</sub>
6664.722	15000.23	2		26788 <sub>2/2</sub> —41788 <sub>1/2</sub>
6673.656	14980.15	300 <i>c</i>	5 <i>c</i>	16133 <sub>4/2</sub> —31114 <sub>1/2</sub>
6687.099	14950.04	100	1	2572 <sub>4/2</sub> —17522 <sub>4/2</sub>
6699.464	14922.44	2		25174 <sub>2/2</sub> —40096 <sub>1/2</sub>
6701.142	14918.71	5		15770 <sub>1/2</sub> —30689 <sub>0/2</sub>
6707.478	14904.61	8		15624 <sub>2/2</sub> —30528 <sub>2/2</sub>
6710.202	14898.56	10		13252 <sub>2/2</sub> —28151 <sub>1/2</sub>
6712.512	14893.44	4		25405 <sub>1/2</sub> —40299 <sub>2/2</sub>
6718.327	14880.55	1 <i>h</i>		26883 <sub>2/2</sub> —41764 <sub>2/2</sub>
6721.629	14873.24	3		29233 <sub>3/2</sub> —44107 <sub>2/2</sub>
6731.187	14852.12	50		30133 <sub>1/2</sub> —44985 <sub>3/2</sub>
6733.847	14846.25	7		26883 <sub>2/2</sub> —41729 <sub>3/2</sub>
6738.066	14836.95	1		26788 <sub>2/2</sub> —41625 <sub>1/2</sub>
6742.901	14826.31	5		16287 <sub>3/2</sub> —31114 <sub>4/2</sub>
6745.042	14821.61	6		34515 <sub>2/2</sub> —49337 <sub>2/2</sub>
6747.530	14816.14	7 <i>h</i>		30060 <sub>2/2</sub> —44876 <sub>1/2</sub>
6748.838	14813.27	5		26950 <sub>3/2</sub> —41764 <sub>2/2</sub>
6753.399	14803.27	10		25174 <sub>2/2</sub> —39977 <sub>2/2</sub>
6758.326	14792.48	20		34942 <sub>1/2</sub> —49735 <sub>1/2</sub>
6761.469	14785.60	30	1	26917 <sub>5/2</sub> —41703 <sub>4/2</sub>
6764.101	14779.85	2		47819 <sub>4/2</sub> —62599 <sub>4/2</sub>
6764.574	14778.81	5		26950 <sub>3/2</sub> —41729 <sub>3/2</sub>
6764.758	14778.41	8		30060 <sub>2/2</sub> —44839 <sub>3/2</sub>
6767.183	14773.12	2		29233 <sub>3/2</sub> —44007 <sub>2/2</sub>
6773.899	14758.47	4		15770 <sub>1/2</sub> —30528 <sub>2/2</sub>
6776.580	14752.63	8		26950 <sub>3/2</sub> —41703 <sub>4/2</sub>
6786.003	14732.14	80	2	17282 <sub>3/2</sub> —32014 <sub>2/2</sub>
6786.965	14730.06	10		34515 <sub>2/2</sub> —49245 <sub>3/2</sub>
6787.951	14727.92	2		29539 <sub>4/2</sub> —44266 <sub>3/2</sub>
6795.564	14711.42	2		20231 <sub>1/2</sub> —34942 <sub>1/2</sub>
6798.629	14704.79	70	2	25058 <sub>3/2</sub> —39763 <sub>4/2</sub>
6800.793	14700.11	2		27517 <sub>2/2</sub> —42217 <sub>4/2</sub>
6805.049	14690.91	5		25405 <sub>1/2</sub> —40096 <sub>1/2</sub>
6805.942	14688.98	15		30382 <sub>3/2</sub> —45071 <sub>2/2</sub>
6813.340	14673.04	5		28839 <sub>5/2</sub> —43512 <sub>5/2</sub>
6818.126	14662.74	10		26917 <sub>5/2</sub> —41580 <sub>5/2</sub>
6826.146	14645.51	5		26883 <sub>2/2</sub> —41529 <sub>3/2</sub>
6826.686	14644.35	5		17282 <sub>3/2</sub> —31927 <sub>2/2</sub>
6830.007	14637.23	8		30630 <sub>1/2</sub> —45267 <sub>1/2</sub>
6833.736	14629.24	3		27971 <sub>4/2</sub> —42600 <sub>5/2</sub>
6837.906	14620.32	4 <i>hw</i>		19895 <sub>2/2</sub> —34515 <sub>2/2</sub>
6837.906	14620.32	4 <i>hw</i>		24564 <sub>5/2</sub> —39185 <sub>4/2</sub>
6856.902	14579.82	60	1	30528 <sub>2/2</sub> —45108 <sub>1/2</sub>
6860.726	14571.69	30	1	25405 <sub>1/2</sub> —39977 <sub>2/2</sub>
6866.677	14559.06	25		30630 <sub>1/2</sub> —45189 <sub>0/2</sub>
6874.626	14542.23	10		30528 <sub>2/2</sub> —45071 <sub>2/2</sub>
6894.386	14500.55	20		30689 <sub>0/2</sub> —45189 <sub>0/2</sub>
6901.620	14485.35	2		39459 <sub>2/2</sub> —53945 <sub>2/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
6905.117	14478.02	10		30630 <sup>o</sup> <sub>1 1/2</sub> —45108 <sub>1 1/2</sub>
6907.514	14472.99	30		27971 <sub>4 1/2</sub> —42444 <sup>o</sup> <sub>5 1/2</sub>
6924.055	14438.42	15		25405 <sub>1 1/2</sub> —39844 <sup>o</sup> <sub>1 1/2</sub>
6928.934	14428.25	3 <i>h</i>		34515 <sup>o</sup> <sub>2 1/2</sub> —48944 <sub>2 1/2</sub>
6931.795	14422.29	30		30382 <sup>o</sup> <sub>3 1/2</sub> —44804 <sub>2 1/2</sub>
6933.236	14419.30	30		20523 <sub>2 1/2</sub> —34942 <sup>o</sup> <sub>1 1/2</sub>
6939.892	14405.47	4		27517 <sub>2 1/2</sub> —41922 <sup>o</sup> <sub>2 1/2</sub>
6944.988	14394.90	2		34942 <sup>o</sup> <sub>1 1/2</sub> —49337 <sub>2 1/2</sub>
6945.597	14393.64	15		25174 <sub>2 1/2</sub> —39567 <sup>o</sup> <sub>3 1/2</sub>
6949.320	14385.92	7 <i>h</i>		48213 <sup>o</sup> <sub>4 1/2</sub> —62599 <sub>4 1/2</sub>
6952.625	14379.09	3		25598 <sub>2 1/2</sub> —39977 <sup>o</sup> <sub>2 1/2</sub>
6958.593	14366.75	4		29539 <sub>4 1/2</sub> —43905 <sup>o</sup> <sub>3 1/2</sub>
6968.151	14347.05	30		23265 <sup>o</sup> <sub>3 1/2</sub> —37612 <sub>3 1/2</sub>
6975.067	14332.82	7		28839 <sub>5 1/2</sub> —43172 <sup>o</sup> <sub>5 1/2</sub>
6980.153	14322.38	10		17282 <sub>3 1/2</sub> —31605 <sup>o</sup> <sub>3 1/2</sub>
6985.402	14311.62	30		26788 <sub>2 1/2</sub> —41100 <sup>o</sup> <sub>2 1/2</sub>
6985.402	14311.62	30		48287 <sup>o</sup> <sub>5 1/2</sub> —62599 <sub>4 1/2</sub>
6990.300	14301.59	40		2572 <sub>4 1/2</sub> —16874 <sup>o</sup> <sub>3 1/2</sub>
6998.037	14285.78	8		25174 <sub>2 1/2</sub> —39459 <sup>o</sup> <sub>2 1/2</sub>
6998.653	14284.52	15		20231 <sub>1 1/2</sub> —34515 <sup>o</sup> <sub>2 1/2</sub>
7002.375	14276.93	150		17328 <sub>4 1/2</sub> —31605 <sup>o</sup> <sub>3 1/2</sub>
7004.781	14272.02	6		3250 <sub>3 1/2</sub> —17522 <sub>4 1/2</sub>
7006.293	14268.94	20 <i>c</i>		34515 <sup>o</sup> <sub>2 1/2</sub> —48784 <sub>3 1/2</sub>
7011.448	14258.45	2		28839 <sub>5 1/2</sub> —43097 <sup>o</sup> <sub>4 1/2</sub>
7014.108	14253.05	10 <i>c</i>		30060 <sub>2 1/2</sub> —44313 <sup>o</sup> <sub>1 1/2</sub>
7016.574	14248.04	100		16133 <sub>4 1/2</sub> —30382 <sup>o</sup> <sub>3 1/2</sub>
7020.025	14241.03	20		16287 <sub>3 1/2</sub> —30528 <sup>o</sup> <sub>2 1/2</sub>
7029.723	14221.39	8		41896 <sup>o</sup> <sub>4 1/2</sub> —56118 <sub>5 1/2</sub>
7032.894	14214.97	10		16415 <sub>2 1/2</sub> —30630 <sup>o</sup> <sub>1 1/2</sub>
7054.800	14170.83	10		25405 <sub>1 1/2</sub> —39576 <sup>o</sup> <sub>1 1/2</sub>
7061.633	14157.12	7		23455 <sup>o</sup> <sub>2 1/2</sub> —37612 <sub>3 1/2</sub>
7065.596	14149.18	10		26950 <sub>3 1/2</sub> —41100 <sup>o</sup> <sub>2 1/2</sub>
7071.442	14137.48	30		26950 <sub>3 1/2</sub> —41088 <sup>o</sup> <sub>3 1/2</sub>
7076.770	14126.84	15		14169 <sub>1 1/2</sub> —28296 <sup>o</sup> <sub>0 1/2</sub>
7083.599	14113.22	15		16415 <sub>2 1/2</sub> —30528 <sup>o</sup> <sub>2 1/2</sub>
7084.871	14110.69	1		29539 <sub>4 1/2</sub> —43649 <sup>o</sup> <sub>4 1/2</sub>
7086.180	14108.08	500 <i>cw</i>		16025 <sub>5 1/2</sub> —30133 <sup>o</sup> <sub>4 1/2</sub>
7093.120	14094.28	60		16287 <sub>3 1/2</sub> —30382 <sup>o</sup> <sub>3 1/2</sub>
7097.242	14086.09	3		17328 <sub>4 1/2</sub> —31414 <sup>o</sup> <sub>3 1/2</sub>
7109.813	14061.19	8		27971 <sub>4 1/2</sub> —42032 <sup>o</sup> <sub>5 1/2</sub>
7115.781	14049.39	8		30060 <sub>2 1/2</sub> —44110 <sup>o</sup> <sub>1 1/2</sub>
7117.170	14046.65	4		30060 <sub>2 1/2</sub> —44107 <sup>o</sup> <sub>2 1/2</sub>
7123.974	14033.24	4		29233 <sub>3 1/2</sub> —43267 <sup>o</sup> <sub>3 1/2</sub>
7124.784	14031.64	30		29233 <sub>3 1/2</sub> —43265 <sup>o</sup> <sub>4 1/2</sub>
7134.829	14011.89	1		27517 <sub>2 1/2</sub> —41529 <sup>o</sup> <sub>3 1/2</sub>
7140.187	14001.37	3		34942 <sup>o</sup> <sub>1 1/2</sub> —48944 <sub>2 1/2</sub>
7141.286	13999.22	200		16133 <sub>4 1/2</sub> —30133 <sup>o</sup> <sub>4 1/2</sub>
7144.678	13992.57	15		20523 <sub>2 1/2</sub> —34515 <sup>o</sup> <sub>2 1/2</sub>
7156.874	13968.73	20		30133 <sup>o</sup> <sub>4 1/2</sub> —44102 <sub>3 1/2</sub>
7157.626	13967.26	200 <i>c</i>		17146 <sub>5 1/2</sub> —31114 <sup>o</sup> <sub>4 1/2</sub>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
7179.043	13925.59	10		27971 <sub>4/2</sub> —41896 <sub>4/2</sub>
7191.591	13901.29	3		42217 <sub>4/2</sub> —56118 <sub>5/2</sub>
7194.656	13895.37	2		48142 <sub>2/2</sub> —62038 <sub>3/2</sub>
7207.026	13871.52	8		31114 <sub>4/2</sub> —44985 <sub>3/2</sub>
7220.543	13845.55	2		16287 <sub>3/2</sub> —30133 <sub>4/2</sub>
7251.685	13786.09	15		17328 <sub>4/2</sub> —31114 <sub>4/2</sub>
7256.089	13777.73	70		19702 <sub>1/2</sub> —33480 <sub>0/2</sub>
7264.840	13761.13	3		28839 <sub>5/2</sub> —42600 <sub>5/2</sub>
7283.164	13726.51	15		29539 <sub>4/2</sub> —43265 <sub>4/2</sub>
7296.248	13701.89	5w d		31406 <sub>2/2</sub> —45108 <sub>1/2</sub>
7320.300	13656.88	5w		31414 <sub>3/2</sub> —45071 <sub>2/2</sub>
7322.382	13652.99	100		19827 <sub>0/2</sub> —33480 <sub>0/2</sub>
7329.148	13640.39	80		19702 <sub>1/2</sub> —33343 <sub>1/2</sub>
7331.895	13635.28	5		28839 <sub>5/2</sub> —42474 <sub>6/2</sub>
7338.202	13623.56	50		3250 <sub>3/2</sub> —16874 <sub>3/2</sub>
7340.134	13619.97	4		48881 <sub>4/2</sub> —62501 <sub>3/2</sub>
7341.852	13616.79	2		14679 <sub>0/2</sub> —28296 <sub>0/2</sub>
7345.819	13609.43	4		27971 <sub>4/2</sub> —41580 <sub>5/2</sub>
7360.063	13583.09	10		29233 <sub>3/2</sub> —42817 <sub>4/2</sub>
7362.460	13578.67	5w		31406 <sub>2/2</sub> —44985 <sub>3/2</sub>
7366.336	13571.53	40 cw		31414 <sub>3/2</sub> —44985 <sub>3/2</sub>
7395.066	13518.80	50		30630 <sub>1/2</sub> —44149 <sub>0/2</sub>
7402.619	13505.01	100 cw		31414 <sub>3/2</sub> —44919 <sub>4/2</sub>
7405.363	13500.00	200		30528 <sub>2/2</sub> —44028 <sub>1/2</sub>
7421.120	13471.34	8		14679 <sub>0/2</sub> —28151 <sub>1/2</sub>
7424.011	13466.09	20		31605 <sub>3/2</sub> —45071 <sub>2/2</sub>
7427.154	13460.40	60		30689 <sub>0/2</sub> —44149 <sub>0/2</sub>
7431.650	13452.25	2		36050 <sub>2/2</sub> —44402 <sub>0/2</sub>
7434.122	13447.78	150		19895 <sub>2/2</sub> —33343 <sub>1/2</sub>
7452.496	13414.62	600		30382 <sub>3/2</sub> —43796 <sub>2/2</sub>
7461.594	13398.27	60		30630 <sub>1/2</sub> —44028 <sub>1/2</sub>
7470.148	13382.93	50		19702 <sub>1/2</sub> —33085 <sub>2/2</sub>
7471.776	13380.01	20		29233 <sub>3/2</sub> —42613 <sub>4/2</sub>
7494.288	13339.82	6		30689 <sub>0/2</sub> —44028 <sub>1/2</sub>
7512.280	13307.87	3		26788 <sub>2/2</sub> —40096 <sub>1/2</sub>
7534.952	13267.83	80		30528 <sub>2/2</sub> —43796 <sub>2/2</sub>
7540.265	13258.48	800		30133 <sub>4/2</sub> —43391 <sub>3/2</sub>
7543.391	13252.98	80		32014 <sub>2/2</sub> —45267 <sub>1/2</sub>
7545.510	13249.26	30		20231 <sub>1/2</sub> —33480 <sub>0/2</sub>
7547.268	13246.18	5		17282 <sub>3/2</sub> —30528 <sub>2/2</sub>
7548.442	13244.12	50		32253 <sub>4/2</sub> —45497 <sub>0/2</sub>
7550.991	13239.65	10w		32258 <sub>1/2</sub> —45497 <sub>0/2</sub>
7574.026	13199.38	200		31605 <sub>3/2</sub> —44804 <sub>2/2</sub>
7577.614	13193.13	2		28839 <sub>5/2</sub> —42032 <sub>5/2</sub>
7579.267	13190.25	500		19895 <sub>2/2</sub> —33085 <sub>2/2</sub>
7583.935	13182.13	5		19903 <sub>3/2</sub> —33085 <sub>2/2</sub>
7583.935	13182.13	5		25058 <sub>3/2</sub> —38240 <sub>3/2</sub>
7586.447	13177.77	5		3250 <sub>3/2</sub> —16428 <sub>3/2</sub>
7588.611	13174.01	7		3700 <sub>2/2</sub> —16874 <sub>3/2</sub>
7593.152	13166.13	7		30630 <sub>1/2</sub> —43796 <sub>2/2</sub>

TABLE 3. Classified lines of Tc 1

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
7624.538	13111.93	90		20231 <sub>1/2</sub> -33343 <sub>1/2</sub> <sup>a</sup>
7631.825	13099.42	4		17282 <sub>3/2</sub> -30382 <sub>3/2</sub> <sup>a</sup>
7634.531	13094.77	7		32403 <sub>0/2</sub> -45497 <sub>0/2</sub>
7635.083	13093.83	4		32014 <sub>2/2</sub> -45108 <sub>1/2</sub>
7657.044	13056.27	2		32014 <sub>2/2</sub> -45071 <sub>2/2</sub>
7658.374	13054.00	30 <i>c</i>		17328 <sub>4/2</sub> -30382 <sub>3/2</sub> <sup>a</sup>
7676.957	13022.41	4		21920 <sub>2/2</sub> -34942 <sub>0/2</sub> <sup>a</sup>
7681.790	13014.21	15		32253 <sub>1/2</sub> -45267 <sub>1/2</sub>
7684.458	13009.69	100		30382 <sub>3/2</sub> -43391 <sub>3/2</sub>
7684.458	13009.69	100		32258 <sub>1/2</sub> -45267 <sub>1/2</sub>
7697.370	12987.87	500		31114 <sub>4/2</sub> -44102 <sub>3/2</sub>
7698.190	12986.49	80 <i>cw</i>		17146 <sub>5/2</sub> -30133 <sub>0/2</sub> <sup>a</sup>
7719.592	12950.48	2 <i>h</i>		30060 <sub>2/2</sub> -43011 <sub>0/2</sub>
7722.199	12946.11	3		43172 <sub>5/2</sub> -56118 <sub>5/2</sub>
7733.630	12926.98	5 <i>c</i>		14733 <sub>4/2</sub> -27660 <sub>0/2</sub>
7737.368	12920.73	50 <i>c</i>		17146 <sub>5/2</sub> -30067 <sub>0/2</sub> <sup>a</sup>
7746.605	12905.32	10		29539 <sub>4/2</sub> -42444 <sub>0/2</sub> <sup>a</sup>
7777.220	12854.52	40		20231 <sub>1/2</sub> -33085 <sub>2/2</sub>
7779.594	12850.60	6 <i>c</i>		17282 <sub>3/2</sub> -30133 <sub>0/2</sub> <sup>a</sup>
7779.594	12850.60	6 <i>c</i>		32258 <sub>1/2</sub> -45108 <sub>1/2</sub>
7782.993	12844.99	15		41100 <sub>2/2</sub> 53945 <sub>2/2</sub>
7782.993	12844.99	15		30060 <sub>2/2</sub> -42905 <sub>0/2</sub>
7793.046	12828.42	800 <i>cw</i>		19791 <sub>4/2</sub> -32620 <sub>3/2</sub>
7798.280	12819.81	60		20523 <sub>2/2</sub> -33343 <sub>0/2</sub> <sup>a</sup>
7807.200	12805.16	10		17328 <sub>4/2</sub> -30133 <sub>0/2</sub> <sup>a</sup>
7816.741	12789.53	60		32014 <sub>2/2</sub> -44804 <sub>2/2</sub>
7817.728	12787.92	800		30067 <sub>5/2</sub> -42855 <sub>4/2</sub>
7854.400	12728.21	10		3700 <sub>2/2</sub> -16428 <sub>0/2</sub>
7856.380	12725.00	100		19895 <sub>2/2</sub> -32620 <sub>3/2</sub>
7858.250	12721.97	10		30133 <sub>0/2</sub> -42855 <sub>4/2</sub>
7861.440	12716.81	200		19903 <sub>3/2</sub> -32620 <sub>3/2</sub>
7871.250	12700.96	400 <i>ld</i>		20384 <sub>3/2</sub> -33085 <sub>2/2</sub>
7874.760	12695.30	60 <i>cw</i>		31406 <sub>5/2</sub> -44102 <sub>3/2</sub>
7876.190	12693.00	2		26883 <sub>2/2</sub> -39576 <sub>0/2</sub> <sup>a</sup>
7879.370	12687.87	8 <i>c</i>		31414 <sub>0/2</sub> -44102 <sub>3/2</sub>
7881.630	12684.24	5		26883 <sub>2/2</sub> -39567 <sub>0/2</sub> <sup>a</sup>
7885.980	12677.24	40 <i>cw</i>		22265 <sub>2/2</sub> -34942 <sub>0/2</sub> <sup>a</sup>
7894.750	12663.16	2		29233 <sub>3/2</sub> -41896 <sub>0/2</sub> <sup>a</sup>
7898.567	12657.04	3		20686 <sub>2/2</sub> -33343 <sub>0/2</sub> <sup>a</sup>
7905.729	12645.57	20 <i>c</i>		31503 <sub>0/2</sub> -44149 <sub>0/2</sub>
7911.290	12636.68	4 <i>c</i>		14733 <sub>4/2</sub> -27369 <sub>0/2</sub> <sup>a</sup>
7920.371	12622.19	10 <i>h</i>		31406 <sub>5/2</sub> -44028 <sub>1/2</sub>
7949.716	12575.60	15 <i>c</i>		19827 <sub>0/2</sub> -32403 <sub>0/2</sub>
7958.092	12562.37	5		20523 <sub>2/2</sub> -33085 <sub>2/2</sub>
7965.452	12550.76	70		32253 <sub>0/2</sub> -44804 <sub>2/2</sub>
7968.304	12546.27	50		32258 <sub>1/2</sub> -44804 <sub>2/2</sub>
7981.805	12525.04	50 <i>cw</i>		31503 <sub>0/2</sub> -44028 <sub>1/2</sub>
7999.730	12496.98	500		31605 <sub>3/2</sub> -44102 <sub>3/2</sub>
8001.889	12493.61	10		29539 <sub>4/2</sub> -42032 <sub>5/2</sub>
8017.229	12469.70	8		29233 <sub>3/2</sub> -41703 <sub>0/2</sub> <sup>a</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
8029.468	12450.70	8 <i>c</i>		32620 <sub>3/2</sub> <sup>o</sup> —45071 <sub>2/2</sub>
8042.473	12430.56	30		19827 <sub>0/2</sub> <sup>o</sup> —32258 <sub>1/2</sub> <sup>o</sup>
8045.330	12426.15	25		4002 <sub>1/2</sub> <sup>o</sup> —16428 <sub>2/2</sub> <sup>o</sup>
8068.794	12390.01	40 <i>c</i>		31406 <sub>2/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8073.665	12382.54	10 <i>c</i>		31414 <sub>3/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8112.776	12322.84	1		32014 <sub>2/2</sub> <sup>o</sup> —44337 <sub>2/2</sub> <sup>o</sup>
8116.919	12316.55	5		15624 <sub>2/2</sub> <sup>o</sup> —27940 <sub>2/2</sub> <sup>o</sup>
8119.869	12312.08	40		19702 <sub>1/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8126.557	12301.95	200		20783 <sub>3/2</sub> <sup>o</sup> —33085 <sub>2/2</sub> <sup>o</sup>
8132.651	12292.73	5 <i>h</i>		31503 <sub>1/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8142.630	12277.66	30		31114 <sub>4/2</sub> <sup>o</sup> —43391 <sub>3/2</sub> <sup>o</sup>
8170.558	12235.70	200		20384 <sub>3/2</sub> <sup>o</sup> —32620 <sub>3/2</sub> <sup>o</sup>
8200.050	12191.69	3		31605 <sub>3/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8205.276	12183.93	150		32620 <sub>3/2</sub> <sup>o</sup> —44804 <sub>2/2</sub> <sup>o</sup>
8206.495	12182.12	100		33085 <sub>2/2</sub> <sup>o</sup> —45267 <sub>1/2</sub> <sup>o</sup>
8211.310	12174.97	150		31927 <sub>2/2</sub> <sup>o</sup> —44102 <sub>3/2</sub> <sup>o</sup>
8225.074	12154.60	50		33343 <sub>1/2</sub> <sup>o</sup> —45497 <sub>0/2</sub> <sup>o</sup>
8237.089	12136.87	500 <i>cw</i>		21206 <sub>2/2</sub> <sup>o</sup> —33343 <sub>1/2</sub> <sup>o</sup>
8248.960	12119.40	40		19895 <sub>2/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8254.505	12111.26	30		19903 <sub>3/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8264.138	12097.15	10		20523 <sub>2/2</sub> <sup>o</sup> —32620 <sub>3/2</sub> <sup>o</sup>
8276.202	12079.51	1 <i>h</i>		32253 <sub>1/2</sub> <sup>o</sup> —44333 <sub>1/2</sub> <sup>o</sup>
8276.202	12079.51	1 <i>h</i>		32258 <sub>1/2</sub> <sup>o</sup> —44337 <sub>2/2</sub> <sup>o</sup>
8306.220	12035.86	2		15624 <sub>2/2</sub> <sup>o</sup> —27660 <sub>3/2</sub> <sup>o</sup>
8308.158	12033.05	200		21447 <sub>1/2</sub> <sup>o</sup> —33480 <sub>0/2</sub> <sup>o</sup>
8309.161	12031.60	200		19895 <sub>2/2</sub> <sup>o</sup> —31927 <sub>2/2</sub> <sup>o</sup>
8315.502	12022.42	60		53945 <sub>2/2</sub> <sup>o</sup> —41922 <sub>2/2</sub> <sup>o</sup>
8319.074	12017.26	20 <i>cw</i>		33480 <sub>0/2</sub> <sup>o</sup> —45497 <sub>0/2</sub> <sup>o</sup>
8346.576	11977.66	40		31414 <sub>3/2</sub> <sup>o</sup> —43391 <sub>3/2</sub> <sup>o</sup>
8383.670	11924.67	40		33343 <sub>1/2</sub> <sup>o</sup> —45267 <sub>1/2</sub> <sup>o</sup>
8404.004	11895.82	7		32253 <sub>1/2</sub> <sup>o</sup> —44149 <sub>0/2</sub> <sup>o</sup>
8415.550	11879.50	50 <i>cw</i>		21206 <sub>2/2</sub> <sup>o</sup> —33085 <sub>2/2</sub> <sup>o</sup>
8422.434	11869.79	5		31927 <sub>2/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8462.808	11813.16	10 <i>c</i>		19791 <sub>4/2</sub> <sup>o</sup> —31605 <sub>3/2</sub> <sup>o</sup>
8477.918	11792.10	2		27971 <sub>4/2</sub> <sup>o</sup> —39763 <sub>4/2</sub> <sup>o</sup>
8481.348	11787.34	50 <i>c</i>		33480 <sub>0/2</sub> <sup>o</sup> —45267 <sub>1/2</sub> <sup>o</sup>
8484.000	11783.65	40		20231 <sub>1/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8497.126	11765.45	5 <i>h</i>		33343 <sub>1/2</sub> <sup>o</sup> —45108 <sub>1/2</sub> <sup>o</sup>
8514.700	11741.16	30		31114 <sub>4/2</sub> <sup>o</sup> —42855 <sub>4/2</sub> <sup>o</sup>
8522.539	11730.37	20		20523 <sub>2/2</sub> <sup>o</sup> —32253 <sub>1/2</sub> <sup>o</sup>
8531.062	11718.65	100		33085 <sub>2/2</sub> <sup>o</sup> —44804 <sub>2/2</sub> <sup>o</sup>
8537.653	11709.60	30		19895 <sub>2/2</sub> <sup>o</sup> —31605 <sub>3/2</sub> <sup>o</sup>
8543.616	11701.43	100		19903 <sub>3/2</sub> <sup>o</sup> —31605 <sub>3/2</sub> <sup>o</sup>
8595.933	11630.21	10		20384 <sub>3/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8604.090	11619.18	3		38319 <sub>1/2</sub> <sup>o</sup> —49938 <sub>2/2</sub> <sup>o</sup>
8639.395	11571.70	4		20686 <sub>2/2</sub> <sup>o</sup> —32258 <sub>1/2</sub> <sup>o</sup>
8664.128	11538.67	6		32258 <sub>1/2</sub> <sup>o</sup> —43796 <sub>2/2</sub> <sup>o</sup>
8673.629	11526.03	8		16133 <sub>4/2</sub> <sup>o</sup> —27660 <sub>3/2</sub> <sup>o</sup>
8707.215	11481.57	100 <i>cw</i>		32620 <sub>3/2</sub> <sup>o</sup> —44102 <sub>3/2</sub> <sup>o</sup>
8719.950	11464.80	30		31927 <sub>2/2</sub> <sup>o</sup> —43391 <sub>3/2</sub> <sup>o</sup>

TABLE 3. *Classified lines of Tc I*

Wavelength Å	Wavenumber cm <sup>-1</sup>	Intensity		Energy levels cm <sup>-1</sup>
		Arc	Spark	
8722.680	11461.21	25		33343 <sub>1/2</sub> <sup>o</sup> —44804 <sub>2/2</sub>
8737.936	11441.20	100 <i>cw</i>		31414 <sub>3/2</sub> <sup>o</sup> —42855 <sub>4/2</sub>
8751.779	11423.11	20		21920 <sub>2/2</sub> <sup>o</sup> —33343 <sub>1/2</sub> <sup>o</sup>
8756.861	11416.48	15		21926 <sub>2/2</sub> <sup>o</sup> —33343 <sub>1/2</sub> <sup>o</sup>
8766.685	11403.68	6		20523 <sub>2/2</sub> <sup>o</sup> —31927 <sub>2/2</sub> <sup>o</sup>
8787.243	11377.00	3		32014 <sub>2/2</sub> <sup>o</sup> —43391 <sub>3/2</sub>
8790.906	11372.26	2		16287 <sub>3/2</sub> <sup>o</sup> —27660 <sub>3/2</sub> <sup>o</sup>
8808.817	11349.14	2 <i>h</i>		38216 <sub>2/2</sub> <sup>o</sup> —49565 <sub>2/2</sub>
8812.420	11344.50	5 <i>c</i>		16025 <sub>5/2</sub> <sup>o</sup> —27369 <sub>4/2</sub> <sup>o</sup>
8820.915	11333.58	10 <i>c</i>		21752 <sub>3/2</sub> <sup>o</sup> —33085 <sub>2/2</sub> <sup>o</sup>
8829.829	11322.13	200 <i>cw</i>		19791 <sub>4/2</sub> <sup>o</sup> —31114 <sub>4/2</sub> <sup>o</sup>
8897.645	11235.84	2 <i>c</i>		16133 <sub>4/2</sub> <sup>o</sup> —27369 <sub>4/2</sub> <sup>o</sup>
8901.474	11231.01	30 <i>c</i>		20783 <sub>3/2</sub> <sup>o</sup> —32014 <sub>2/2</sub> <sup>o</sup>
8909.930	11220.35	2		20384 <sub>3/2</sub> <sup>o</sup> —31605 <sub>3/2</sub> <sup>o</sup>
8917.736	11210.53	8		19903 <sub>3/2</sub> <sup>o</sup> —31114 <sub>4/2</sub> <sup>o</sup>

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(Paper 72A6-521)